

NOTES ON THE GENUS CLERODENDRUM (VERBENACEAE). IX

Harold N. Moldenke

CLERODENDRUM Burm.

Additional synonymy: *Aterodendron* Vahl, in herb. *Cleorodendron* Meijer, in herb.

Additional & emended bibliography: C. Muell. in Walp., Ann. Bot. Syst. 5: 710--711. 1860; Ettingsh. & Gardn., Proc. Roy. Soc. Lond. 30: 233. 1880; Becc., Malesia 3: 35, 47--51, 211, 291, 314, & 340. 1884; Schimp., Wechselbez. Zwisch. Pfl. Ameisen. 1888; Heim, Ann. Rep. Smithson. Inst. 1896: 432, pl. 18. 1898; Woodrow, Journ. Bomb. Nat. Hist. Soc. 5: 12. 1899; Hiern, Cat. Afr. Pl. Coll. Welw. 1: 839--847. 1900; Gürke, Engl. Bot. Jahrb. 30: 391. 1901; DeWild., Ann. Mus. Congo Bot., ser. 4, 1: 117--120, pl. 37 & 38. 1903; Ridl., Journ. Roy. Asiat. Soc. Straits 53: 102--103. 1909; Mehe, Abhandl. Sachs. Ges. Wiss. Math.-phys. 32: 312--361. 1911; Wernham, Journ. Bot. Brit. 52: 32--33. 1914; Backer, Tropische Natuur 5: 87, 92, & 93. 1916; Wangerin, Justs Bot. Jahresber. 52 (1): 392--393 & 462. 1924; Burkill & Haniff, Gard. Bull. Straits 6: 234. 1930; Mildbt., Notizbl. Bot. Gart. Berlin 11: 677--680. 1932; Fedde & Schust., Justs Bot. Jahresber. 54 (2): 747. 1934; Chillon, Rev. Bot. Appliq. 19: 441. 1939; Uphof, Bot. Rev. 8: 574. 1942; E. D. Merr., Pl. Life Pacif. World 97, 98, & 273, fig. 90. 1945; W. Robyns, Fl. Sperm. Parc Nat. Albert 2: 140--147. 1947; Wild, Vict. Falls Handb. 158. 1953; J. K. Jacks., Journ. Ecol. 44: 350 & 363. 1956; Anon., Amer. Midl. Nat. 60: 388. 1958; Gilliland & Jabil, Proc. Sympos. Humid Trop. Veg. 64. 1958; Anon., Etud. Tax. Fl. Afr. Trop. Ind. 1959: 53. 1960; Seaforth, West Afr. Journ. Biol. Appl. Chem. 7: 29 & 31. 1963; Hocking, Excerpt. Bot. A.7: 454. 1964; Wild, Kirkia 5: 4. 1965; Burkill, Dict. Econ. Prod. Malay Penins. 1: 589--596. 1966; Glover, Gloss. Bot. Kipsig. Names Kenya 158. 1967; Ashton, Biol. Journ. Linn. Soc. 1/2: 193. 1969; Glover, Stewart, Fumerton, Marindany, & Anderson, Gloss. Botan. Kipsig. Names 232 & 259. 1969; J. K. Jacks. in Eyre, World Veget. Types 94. 1971; Hyland, U. S. Dept. Agr. Pl. Invent. 178: 209 & 277. 1972; Janzen, Biotropica 6: 253. 1974; Isaacson, Flow. Pl. Ind. 1: 335--337. 1979; Judd, Phytologia 58: 233 & 239. 1985; Mold., Phytologia 58: 279--303. 1985.

Additional excluded taxa: *Clerodendron cyaneum* Zipp. ex Miq., Ann. Mus. Bot. Lugd.-Bat. 2: 99 in syn. 1865 = *Caryopteris chosenensis* Mold. *Clerodendron fissicalyx* Scheff. ex Mold., Phytol. Mem. 2: 385 in syn. 1980 = *Faradaya papuana* Scheff.

CLERODENDRUM ALATUM Gürke

Emended synonymy: *Clerodendron fleuryi* A. Chev., Bull. Soc. Bot. France 58, Mem. 8: 191. 1912. *Clerodendron fleuryi* A. Chev. apud B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 47, 83, & 93. 1936. *Clerodendron lelyi* Hutch. apud B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 83 & 93 in syn. 1936.

Additional & emended bibliography: A. Chev., Bull. Soc. Bot. France

58 Mem. 8: 191. 1912; Fedde & Schust., Justs Bot. Jahresber. 39 (2): 319. 1913; A. Chev., Expl. Bot. Afr. Occ. Franç. 1: 508. 1920; Prain, Ind. Kew. Suppl. 5, imp. 1, 61. 1921; Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 1, 2: 272 & 273. 1931; Chillou, Rev. Bot. Appliq. 19: 441. 1939; Mold., Alph. List Inv. Names 17--19 & 21. 1942; H. N. & A. L. Mold., Pl. Life 2: 59. 1948; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 109--114, 180, & 181. 1949; Prain, Ind. Kew. Suppl. 5, imp. 2, 61. 1960; Mold., Phytologia 57: 469--472. 1985.

Clerodendron fleuryi is based on *Chevalier 22160* from Ivory Coast. Hutchinson & Dalziel (1931) cite for it *Chevalier 22160*, *Dalziel 205*, *Dent Young 205*, and *Lely 384* from Ivory Coast and Northern Nigeria.

CLERODENDRUM ANGOLENSE Gürke

Additional synonymy: *Clerodendron capitatum* var. *butayei* DeWild., Ann. Mus. Congo Bot., ser. 5, 3: 131 in syn. 1909.

Additional bibliography: Mildbr., Notizbl. Bot. Gart. Berlin 11: 680. 1932; Mold., Phytologia 58: 180 & 303. 1985.

Mildbraed (1932) asserts that his *C. eurphyllum* is very closely related to *C. angolense*, but differs in its distinctive leaf-shape, coarsely dentate leaf-blades, matted pubescence on the younger parts of the branches, and the few-flowered inflorescences.

DeWildeman (1909) cites *Flamigni s.n.*, *Huyghe s.n.*, *Laurent 663 & 882*, *Pynaert 521*, and *Seret 698* from Zaire.

CLERODENDRUM BETHUNIANUM Low

Emended synonymy: *Clerodendron bethuneana* Low, Sarawak 378 nom. nud. 1848.

Additional bibliography: Mold., Phytologia 58: 192--199. 1985.

Low's original (1848) so-called description of this species consists merely of the statement that "We had passed...two large shrubs of the magnificent *Clerodendron Bethuneana* which were in full flower".

CLERODENDRUM BUCHNERI Gürke

Additional bibliography: Mold., Phytologia 58: 300--303. 1985.

Additional citations: ZAIRE: *Quarré 6235* (Br); *Ringoet 375* (Br, Br), *s.n.* [7/3/12] (Br), *s.n.* [1920] (Br); *W. Robyns 2069* (Br); RR P. *Salesiens S.640* (Br), *S.688* (Br), *S.704* (Br). BURUNDI: *Lewalle 1164* (Ld). TANZANIA: Tanganyika: *Hoffmann s.n.* [Peter 16293; O.IV.41] (B); *Peter 35646* [V.137] (B), *35739* [V.137] (B), *37428* [V.160] (B), *37434* [V.163] (B), *37568* [V.164] (B). ANGOLA: Bié-Cuando-Cubango: *E. J. Mendes 2220* (Ld, U1). Huila: *Barbosa & Correia 8927* (U1); *E. J. Mendes 1831* (U1, U1), *2038* (U1). Lunda: *Sanjinje s.n.* [VI.54.114] (U1). Moxico: *Barros Machado 142* (U1), *262* (U1), *286* (U1), *308* (U1), *322* (U1), *358e* (U1). Province undetermined: *Pocock 216* [Lukona-Kassassa] (Af). ZAMBIA: *Bredo 3802* (Br, N); *Ferrar s.n.* [Govt. Herb. Salisb. 4802] (N); *Herb. Queen Victoria Memorial 8192* (Rh); *E. Milne-Redhead 510* (Br, K), *2558* (Br, K, N); *J. G. Read 11* (Af). ZIMBABWE: *C. E. F. Allen 463* (Rh). NAMIBIA: *Baum 533* (Br, Mu--3915, N, S). CULTIVATED: Tanzania: *M. S. 556* (Mu).

CLERODENDRUM BUKOBENSE Gürke, Engl. Bot. Jahrb. 18: 182--183 [as "*Clero-*"]

dendron"]. 1893; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 45, 81, & 92. 1936.

Synonymy: *Clerodendron bukobense* Gürke, Engl. Bot. Jahrb. 18: 182--183. 1893. *Clerodendron variifolium* DeWild., Bull. Jard. Bot. Brux. 7: 179. 1920. *Clerodendrum variifolium* DeWild. apud B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 81 in syn. 1936.

Bibliography: Gürke, Engl. Bot. Jahrb. 18: 182--183. 1893; Gürke in Engl., Pflanzenw. Ost-Afr. C: 341. 1895; J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 295 & 311--312. 1900; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 101. 1901; DeWild., Bull. Jard. Bot. Brux. 7: 179. 1920; DeWild., Pl. Bequaert. 2: 268--270. 1922; Fedde & Schust., Justs Bot. Jahresber. 48 (1): 496 (1927) and 53 (1): 1072. 1932; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 9, 25, 30, 45, 81, & 92. 1936; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 101. 1941; Mold., Alph. List Inv. Names 21. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 48, 49, & 89 (1942) and ed. 2, 115, 116, & 180. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 101. 1959; Mold., Résumé 141, 143, 261, 271, & 448. 1959; Mold., Fifth Summ. 1: 228, 235, 440, & 459 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 218, 224, & 534. 1980.

A shrub, subshrub, or suffrutescent herb, sometimes climbing; branches and branchlets glabrous or the youngest short-pubescent; leaves decussate-opposite; petioles short, alate, and basally articulate, or obsolete; leaf-blades papery, oval or ovate to elliptic, 10--12.5 cm. long, 4--5 cm. wide, apically acuminate, glabrous or very sparsely pilose on both surfaces, often with the venation more or less densely velutinous beneath, the lower ones apically coarsely serrate and basally narrowed into the short petiole, the upper ones marginally entire, basally more or less deeply cordate, and sessile, the uppermost gradually merging into the foliaceous bracts; inflorescence axillary, borne at the tips of the stems and branches, dichotomous; cymes long-pedunculate, few-flowered, lax; peduncles to 4 cm. long, downwardly arched or reflexed; rachis and inflorescence-branches short-pubescent; basal bracts foliaceous, oval, diminishing in size from the base to the apex of the inflorescence; bracteoles 2, minute, linear or filiform, pubescent, ciliate; flowers pedicellate, the pedicels 3--5 mm. long; calyx more or less campanulate, 3.5--7 mm. long, externally glabrous or sparsely puberulent, 5-lobed almost to the middle, the lobes rotundate-orbicular, 2--3 mm. long, apically obtuse or rounded; corolla short-tubular, externally glabrous, green or greenish to white, the anterior (lower) lobe blue or lilac to violet, the tube curvate, 7--12 mm. long, mostly about twice the length of the calyx, apically amplate, the limb 5-parted, the lobes ovate, apically obtuse; stamens long-exserted; filaments basally tomentose; style long-exserted; fruiting-calyx about 10 mm. wide; immature fruit black.

This species is based on *Stuhlmann* 3657, 3834, and 4054 from Bukoba in the Karagwe area of Tanganyika, Tanzania, collected in anthesis, respectively, on March 25, April 5, and April 16, 1892, and deposited in the Berlin herbarium, now unfortunately destroyed. Baker (1900) cites only the first two of these cotype collections.

Gürke (1893) -- his work sometimes mis-cited as "1894", the volume titlepage date -- comments that "Dieser zur Sektion *Cyclonema* gehörende Art ist besonders auffallend durch die Form der Blätter: die unteren

sind am Grunde verschmälert, die oberer tief herzförmig; auch die zurückgekrümmten Inflorescenzstiele sind sehr charakteristisch".

DeWildeman's *C. variifolium* is based on *Bequaert 6121* from the gallery forest along the sides of a river at Rutshuru, Zaire, collected on October 30, 1914, and deposited in the Brussels herbarium. The type locality is misspelled "Rutohuru" by Fedde & Schuster (1927).

DeWildeman (1922) provides interesting morphologic details: "plante volubile....pétiole articulé à la base, à articulation peu visibles sur les jeunes rameaux; limbe des feuilles des rameaux principaux elliptiques ou ovales, assez brusquement rétréci, à pétiole ailé, atteignant avec ce dernier 24 cm. de long et de 11,5 de large, cuneiforme à la base, plus ou moins longuement acuminé au sommet, à bords plus ou moins profondément et irrégulièrement dentés, à dents aiguës, nervures principales latérales au nombre de 6--8 de chaque côté de la nervure médiane; feuilles des rameaux latéraux à pétiole à peine ailé, n'atteignant souvent que 3 mm. de diam." He also comments that "Cette plante rappelle fortement celle que nous avons décrit en 1914 (*Fedde Repertorium XIII*, p. 143) sous le nom *C. myricoides* var. *attenuatum*. Elle se rapproche du *C. myricoides*, tel que nous l'avons compris ci-dessus par les dimensions et la forme du calice, et se distingue des lors de la plante du Katanga, des récoltes de M. Homblé, qui possède, comme les types de notre herbier, du *C. myricoides* var. *camporum* Guerke et var. *laxum* Guerke, un calice très réduit rappelant le *C. ugandense* Prain (*Bot. Magazine pl.* 8235). Dans les échantillons du Katanga dont nous avons parlé ailleurs, le pétiole ailé n'atteint pas, d'après les exemplaires en notre possession, le diamètre de celui de la plante galeries forestières du Rutshuru."

Clerodendrum bukobense has been found growing in gallery forests along streams, in flower from March to May and in November. The corollas are described as "greenish with the back petal lilac" on *Lebrun 8423* and "petals white and blue" on *Kahurananga & al. 2699*.

Thomas (1936) has designated *Stuhlmann 3657* as the type, citing in addition *Stuhlmann 3834 & 4054* and *Bequaert 6121*.

The *Peter 33718*, distributed as *C. bukobense*, actually is *C. discolor* var. *oppositifolium* Thomas.

Citations: ZAIRE: *Bequaert 6121* (Br, Ld--photo, N, N--photo); *Lebrun 8423* (Br, N). TANZANIA: Tanganyika: *Kahurananga, Kibwaa, & Mungai 2699* (Mu).

CLERODENDRUM BUNGEI Steud., *Nom. Bot. Phan.*, ed. 2, 1: 82. 1840.

Synonymy: *Clerodendron foetidum* Bunge, *Enum. Pl. Chin. Bor.* 52. 1833 [not *C. foetidum* D. Don, 1825, nor Hort., 1853]. *Clerodendron foetidum* Bunge apud Steud., *Nom. Bot. Phan.*, ed. 2, 1: 382 in syn. 1840. *Clerodendron foliosum* Bunge ex D. Dietr., *Syn. Pl.* 3: 615. 1843. *Clerodendron bungei* Steud. apud Schau. in A. DC., *Prodr.* 11: 672 in syn. 1847. *Clerodendron roseum* Hort. ex Carr., *Rev. Hort.* 47: 80. 1876. *Volkameria bungei* Hort. ex Lavallee, *Arb. Segrez.* 179. 1877. *Ovieda foetida* Baill., *Hist. Pl.* 11: 87, fig. 100. 1891. *Clerodendron bungeanum* Steud. apud Bretschn., *Hist. Europ. Bot. Discov. China* 338. 1898. *Clerodendron bungei* Hort. ex Koord. & Valet., *Meded. Lands Plant.* 42 [Beijdr. Booms. Java 7]: 164. 1900. *Clerodendron foetidum roseum* Hort. ex Schelle in Beissner, Schelle, & Zabel, *Handb. Laubh.*

425 nom. nud. 1903. *Clerodendron esquirolii* Lévl., Feddes Repert. Spec. Nov. 11: 298. 1912 [not *C. esquirolii* Lévl., Feddes Repert. Nov. 11: 302. 1912]. *Pavetta esquirolii* Lévl., Feddes Repert. Spec. Nov. 13: 178. 1914. *Clerodendron oetidum* Bunge apud Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 88 sphalm. 1921. *Clerodendron fragrans* var. *foetida* (Bunge) Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 89. 1921. *Clerodendron yatschuense* H. Winkler, Feddes Repert. Spec. Nov. Beih. 12: 474. 1922. *Clerodendron bungei* Stend. apud Rehd., Man. Cult. Trees Shrubs, ed. 2, imp. 1, 806 in syn. 1940. *Clerodendron bungei* Standl. ex Bravo Hollis & Ramírez Cantú, Anal. Inst. Biol. Mex. 22: 421 sphalm. 1951. *Clerodendrum bungei* Stend apud Rennó, Levant. Herb. Inst. Agron. Minas 149 sphalm. 1960. *Clerodendron foetidum* (Burm.) Bunge, in herb. *Clerodendron foetidum* (L.) Bunge, in herb. *Clerodendron yatschouense* H. Winkler, in herb. *Clerodendron faetium* Bunge, in herb. *Clerodendron bungeana* Ledín, in herb. *Clerodendrum bungei* Standl., in herb. *Clerodendron bungei* Standl., in herb.

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Exkursionsfl. 3: 139. 1912; Diels, Notes Roy. Bot. Gard. Edinb. 7: 332 & 349. 1913; "A. O.", Garden Lond. 77: 560. 1913; Pardé, Bull. Soc. Dendr. France 12: 104 & 131. 1913; J. K. Small, Fl. Southeast. U. S., ed. 2, 1363. 1913; J. K. Small, Shrubs Fla. 117. 1913; Léveillé, Feddes Repert. Spec. Nov. 13: 178. 1914; Léveillé, Fl. Kouy-Tchéou 371. 1914; P. C. Standl., Torreya 15: 9. 1915; Hadden, Garden Lond. 80: 440--441. 1916; Rehd. in Sarg., Pl. Wils. 3: 375. 1916; Léveillé, Cat. Pl. Yun-Nan 277. 1917; "G. J.", Garden Lond. 83: 506. 1919; Cowley, Garden Lond. 84: 524. 1920; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 88, 89, 108, & viii. 1921; H. Winkler, Feddes Repert. Spec. Nov. Beih. 12: 474. 1922; Fedde, Justs Bot. Jahresber. 42: 848. 1923; L. H. Bailey, Man. Cult. Pl., ed. 1, imp. 1, 633, 634, & 808 (1924) and ed. 1, imp. 2, 633, 634, & 808. 1925; Arnold, Gard. Chron., ser. 3, 82: 149. 1927; "A. G. F.", Gard. Chron., ser. 3, 82: 505. 1927; Hegi, Illust. Fl. Mitteleur. 5 (3): 2237. 1927; Rehd., Man. Cult. Trees Shrubs, ed. 1, imp. 1, 778. 1927; Dop, Bull. Soc. Hist. Nat. Toulouse 57: 167--169. 1928; "N. K. G.", Gard. Chron., ser. 3, 84: 207, fig. 94. 1928; Hottes, Book Shrubs, ed. 1, 162. 1928; Wisley, Gard. Chron., ser. 3, 34: 207, fig. 94. 1928; Fedde, Justs Bot. Jahresber. 47 (2): 300. 1929; A. W. Hill, Ind. Kew. Suppl. 7: 253. 1929; Stapf, Ind. Lond. 2: 238. 1930; Hottes, Book Shrubs, ed. 2, 188. 1931; Fedde & Schust., Justs Bot. Jahresber. 53 (1): 1073. 1932; P'ei, Mem. Sci. Soc. China 1 (3): 124, 125, & 138--140. 1932; P'ei, Sinensia 2: 74. 1932; Rehnault, Pareys Blumengärt., ed. 1, 282. 1932; Wilder, Frag. Path 208, 263, & 386. 1932; Beauverd, Bull. Soc. Bot. Genève., ser. 2, 24: 253. 1933; Dop & Pindat, Bull. Soc. Hist. Nat. Toulouse 65: 367--368. 1933; J. K. Small, Man. Southeast. Fl. 1143--1144. 1933; Becherer, Bericht. Schweitz. Bot. Gesell. 43 (1): 67. 1934; Bremekamp, Feddes Repert. Spec. Nov. 37: 191. 1934; Junell, Symb. Bot. Upsal. 1 (4): 101, 104, 180, & 181, fig. 165. 1934; Rehd., Journ. Arnold Arb. 15: 324. 1934; Rehd., Man. Cult. Trees Shrubs, ed. 1, imp. 2, 778. 1934; L. H. Bailey, Florists Handl. Verbenac. [mss.]. 1935; Dop in Lecomte, Fl. Gén. Indo-chin. 4: 850 & 858--859. 1935; Rehd., Man. Cult. Trees Shrubs, ed. 1, imp. 3, 778. 1935; Wangerin, Justs Bot. Jahresber. 55 (1): 834. 1935; Makins, Ident. Trees Shrubs 74 & 259, fig. 62D. 1936; Wangerin, Justs Bot. Jahresber. 56 (1): 669. 1936; Troncoso, Darwiniana 3: 57. 1937; L. H. Bailey, Man. Cult. Pl., ed. 1, imp. 3, 633, 634, & 808. 1938; Mold., Alph. List Comm. Vern. Names 7. 1939; Mold., Lilloa 4: 331. 1939; Mold., Prelim. Alph. List Inv. Names 19, 22, & 33. 1940; Rehd., Man. Cult. Trees Shrubs, ed. 2, imp. 1, 806 & 937. 1940; L. H. Bailey, Man. Cult. Pl., ed. 1, imp. 4, 633, 634, & 808. 1941; L. H. & E. Z. Bailey, Hortus Second, imp. 1, 188. 1941; Calderon & Standl., Fl. Salvad., ed. 2, 236. 1941; Mold., Lilloa 6: 319--320. 1941; Worsdell, Ind. Lond. Suppl. 1: 238. 1941; Hottes, Book Shrubs, ed. 4, 188. 1942; Mold., Alph. List Inv. Names 17, 21, & 34. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 5, 6, 10, 12, 16, 27, 31, 36, 43, 54, 56, 71, & 89. 1942; Mold. in Lundell, Fl. Tex. 3 (1): 83--85. 1942; Herter, Revist. Sudam. Bot. 7: 224. 1943; L. H. Bailey, Man. Cult. Pl., ed. 1, imp. 5, 633, 634, & 808. 1944; E. L. D. Seymour, New Gard. Encycl., ed. 3, 288. 1944; Bowden, Amer. Journ. Bot. 32: 195, 198, & 199, fig. 204. 1945; Mold., Phytologia 2: 98. 1945; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 560 & 561. 1946; Mold., Alph. List Cit.

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Illustrations: Lindl., *Edwards Bot. Reg.* 24: pl. 41 [in color, as "*Clerodendron fragrans*"]. 1838; Planch., *Fl. Serres Jard.*, ser. 1, 9: 17 [in color]. 1853; Sweet, *Ornament. Fl. Gard.* 3: pl. 157 [in color, as "*Clerodendron fragrans*"]. 1854; W. Hook., *Curtis Bot. Mag.* 81 [ser. 3, 11]: pl. 4880 [in color]. 1855; Carr., *Rev. Hort.* 37: 470/471 [in color]. 1866; Baill., *Hist. Pl.* 11: 87, fig. 100. 1891; Voss in *Vilm.*, *Blumengärt.* 1: pl. 95. 1895; C. K. Schneid., *Illust. Handb. Laubholz.* 2: 592, fig. 384 h & i. 1911; "A. O.", *Garden Lond.* 77: 560. 1913; Hadden, *Garden Lond.* 80: 441. 1916; "G. J.", *Garden Lond.* 83: 506. 1919; Cowley, *Garden Lond.* 84: 524. 1920; Hegi, *Illust. Fl. Mitteleur.* 5 (3): 2237. 1927; Dop, *Bull. Soc. Hist. Nat. Toulouse* 57: 167--169. 1928; "N. K. G.", *Gard. Chron.*, ser. 3, 84: 207, fig. 94. 1928; Wisley, *Gard. Chron.*, ser. 3, 34: 207, fig. 94. 1928; Junell, *Symb. Bot. Upsal.* 1 (4): 104, fig. 165. 1934; Makins, *Ident. Trees Shrubs* 74, fig. 62D. 1936; Bowden, *Amer. Journ. Bot.* 32: 198, fig. 204. 1945; Preston, *Gard. Chron.*, ser. 3, 123: 132, fig. 65. 1948; Eisenstaedt, *Life* 30 (8): 66 [in color]. 1951; Graf, *Exotica* 3: 1481. 1963; Everett, *Reader's Digest Compl. Book Gard.* 416. 1966; Hellyer, *Shrubs Colour* [31] [in color]. 1966; Hay & Syngé, *Color Dict. Fls. Plants* 190, pl. 1517 [in color]. 1969; Graf, *Exot. Pl. Man.*, ed. 1, 492. 1970; Morley, *Wild Fls. World* pl. 104f [in color]. 1970; F. Perry, *Compl. Pls. Fls.* pl. 76 [in color]. 1974; Gault, *Color Dict. Shrubs* pl. 100 [in color]. 1976; Raj, *Palaeobot. Palyn.* 39: 416, pl. 14, fig. 2 & 5. 1983; Duke & Ayensu, *Med. Pl. China* 2: 636. 1985.

A small woody or semi-woody shrub, 0.5--3 m. tall, freely suckering, late-flowering; stems erect, dark-green, brittle, basally woody; branchlets and twigs, when produced, rather stoutish, brown, rather shiny, sparsely pilose-puberulent or purple-pubescent when young, soon becoming glabrous, marked with numerous, whitish, slightly raised lenticels; nodes not annulate; principal internodes 1.5--12 cm. long; leaves decussate-opposite, with an unpleasant or even repulsively nauseous-aromatic odor when broken or crushed; petioles rather stout, 2--16.5 cm. long, striate, often somewhat raised-lenticellate, minutely puberulent or glabrate, usually collapsing basally in drying; leaf-blades membranous or subchartaceous, dark-green above, lighter beneath, deltoid-ovate or broadly cordate, 6.5--23 cm. long, 4.5--23 cm. wide, usually about as long as wide, apically acute or short-acuminate, marginally uniformly and coarsely serrate with broadly triangular apically apiculate teeth, basally subtruncate or cordate, often centrally slightly subcuneate into the petiole, more or less pulverulent and marked with scattered, often reddish or purple, very short, often glandular, strigillose hairs on both surfaces but especially beneath, becoming subglabrate, usually with some discoid glands at the base beneath; midrib slender, very slightly prominent and usually puberulent above, prominent beneath; secondaries slender, about 4 on each side, the lowest pair issuing with the midrib at the base of the blade, all ascending and slightly arcuate, often very slightly prominent above and more distinctly so beneath; vein and veinlet reticulation abundant, rather distant; inflorescence usually terminal, very rarely also supra-axillary, corymbose-paniculate in subcapitate fashion, 6--11 cm. long, 2--21 cm. wide, densely many-flowered, very showy, puberulent throughout; peduncles continuous with

and similar to the stems or else flattened and yellowish, varying from obsolete to 10 cm. long; pedicels slender, 1--4 mm. long, densely puberulent; bracts large and foliaceous or absent; bractlets and prophylla linear-setaceous, 1--3 mm. long, puberulent; flower-buds dark magenta-purple; flowers usually fragrant, heavy-scented, about 3 cm. long; calyx campanulate or more or less cylindrical, reddish, 3--6 mm. long, externally rather sparsely puberulent and granular-lepidote or pubescent, the rim 5-toothed, the teeth ovate, about 1.5 mm. long, shorter than the tube, apically obtuse or acute to long-acuminate; corolla cyathiform, usually red or rose to rose-purple, purplish, or purple-pink, not "doubled", rarely white, the tube very slender, 2--2.5 cm. long, 1--1.5 mm. wide, usually about 5 times as long as the calyx, glabrous, the limb [4-? or] 5-lobed, 1--1.5 cm. wide, the lobes oblong-ovate, 3--5 mm. long; stamens violet-blue, long-exserted to about 8 mm. beyond the throat of the corolla-tube; filaments slender; style as long as or longer than the stamens; stigma very shortly bilobed; fruit drupaceous, globose, about 1 cm. long and wide, from red to blue-black, purple, or finally black, shiny; chromosome number: $2n = 108$.

The species is based on *Bunge 296* from gardens in Peking, China. Bunge's original (1833) description is: "Cl. suffruticosum; foliis petiolatis lato-cordatis acutis scabriusculis repando acute dentatis subtus ad nervorum axillas glandulosis, corymbis densis capitatis terminalibus, tubo corollae longissimo calycem quintuplo excedente, limbo quadripartito. Colitur: floret Junio, Julio. ♂ Odore gravi narcotico; flores purpurei, genitalia exserta." This description was repeated verbatim by Dietrich (1843) in his description of his *C. foliosum* "Bunge" except for his corolla "limbo 5-partito" in place of Bunge's "quadripartito". He cites only the type collection.

Clerodendrum bungei is native from China to northern India, but is widely cultivated in many parts of the world and has escaped and/or become naturalized in the southern United States, Puerto Rico, Mexico, parts of South America, Guam, and even Switzerland. It is a member of Section *Densiflora* Schau. *Clerodendron yatschuense* H. Winkler is based on *Limpricht 629*, but his *no. 6570* is also marked as "original" on a photograph in the Britton Herbarium.

It should be noted that the *C. foetidum* of D. Don and of "Hort.", referred to in the synonymy given above, actually belong, respectively, in the synonymy of *Caryopteris foetida* (D. Don) Thellung and *Clerodendrum lindleyi* Decaisne, while the *C. foetidum* ♀ & var. *integri-folium* of Hasskarl are *C. colebrookianum* Walp. and *C. foetidum* fl. pl. Jack is *C. philippinum* f. *multiplex* (Sweet) Mold.; *Volkammeria foetida* Buch.-Ham. and *C. foetida* Hamilt. are synonyms of *Caryopteris foetida* (D. Don) Thellung.

Collectors have found *Clerodendrum bungei* growing in clay or rocky soil, in abandoned ground, waste places and fields, open woods, old yards, often in light shade in damp shaded places, rocky places in bamboo groves, along roadsides and streamsides, in the drainage areas from cow barns, at the open edges of mixed woods, in damp and tropical forests, shady places under isolated trees, moist pastures, and woodlands along rivers, on shaded rocky slopes and the slopes of small

volcanic cones, often on oak-covered slopes, in river barrancas, valleys, and secondary vegetation, near water, and on roadside banks in limestone mountains, at altitudes of 150--3300 meters, in flower in January, March to October, and December, and in fruit in August. Simpson reports that in South Africa it flowers in late summer and autumn; Pitschman and his associates (1965) say that in the southern Alps of Switzerland it flowers in August and September and this is also the season quoted by most northern hemisphere horticulturists. Wilson & Bell (1967) assert that it is "fragrant in autumn".

Bowden (1945) determined the chromosome number of $2n = 108$ on the basis of his no. 6722-39. Baillon (1891) illustrates a cross-section of the ovary. The leaf glands are described by Dop (1928, 1933), while Pitard (1901) describes a composite and interrupted ring of sclerenchyma in the pericycle. Ventura calls the flower fragrance "agreeable", but Curtiss refers to the flowers as "weedy scented" and several other collectors describe it as "unpleasant".

A notation on the Guthrie 284 collection, cited below, avers that this specimen, presumably while alive, was "painted for Addisonia", but I have failed to find it represented in that journal.

Tsang found *C. bungei* "fairly common but scattered" in Kwangsi. Maximowicz (1886) lists it as cultivated ("omnes") in Peking and notes: "*C. foetidum* Don, Prodr. Nepal. 103, quod *Cl. Buchanani* Walp. Repert. IV, 108, DC. Prodr. XI, 672" as a synonym (?), adding "Bungeano nomine quidem vetustius, Schauero mihique incognitum est. Planta quam *P. integrifolium* dixit Hasskarl in Retzia I, 60, e Singapur in hortum bogoriensem introducta, diversissima species videtur, sed a me non visa". Mueller (1860) says of the latter: "Forsan haec varietas speciei novae typum praebet, quam *Clerodendrum ixoraeflori* nomine salutarem." This actually is a synonym of *C. colebrokianum* Walp.

Ewan reports *C. bungei* "thoroughly naturalized" in Orleans Parish, Louisiana; R. D. Thomas lists it as escaped in Orlean, Ouachita, Rapides, and Terrebonne Parishes in that state -- "native or self-reproducing" in Iberia Parish. Standley (1967) also reports it escaped in Louisiana. R. M. Harper, in a letter to me dated October 12, 1943, records it as cultivated in Alabama and as escaped at Montgomery and University, Alabama, and at Tallahassee, Florida. Duncan & Kortes (1981) report it cultivated in Georgia. Wurzlów found it "thoroughly naturalized on abandoned ground" at Houma, Louisiana, flowering there in July. Gimale L. reports it very abundant in Hidalgo, Mexico, while Ventura calls it "abundant on roadsides" in Veracruz. Molina R. (1975) lists it as cultivated in Honduras and Calderón & Standley (1941) found it in gardens in El Salvador. Small (1913) reports it from "fields and thickets" in northern Florida, introduced from China.

López-Palacios (1976) asserts that, though reported, he does not personally know of its occurrence in Colombia; Angely (1971) lists it from Minas Gerais, Rio de Janeiro, and São Paulo, Brazil, while Herter (1943) found it in cultivation in Uruguay. Troncoso (1937) reports it cultivated in Argentina and Venturi found it escaped along the edges of highways in Catamarca. Liogier (1982) lists it as planted and escaped in Puerto Rico, while Fosberg and his associates (1979) found it growing on Guam. The Andersons found it "in shade of trees, not common but locally abundant on roadside banks in limestone moun-

tains" in Hidalgo, Mexico. Beauverd (1933) and Becherer (1931) report it introduced in the vicinity of Locarno, Switzerland. Wunderlin (1982) found it "rare in disturbed sites" in Palm Beach County, Florida, apparently escaped from cultivation.

Encke (1960) gives the assumed natural distribution as Sikkim, China, and the Ryu-Kyu Islands. Boom (1966) asserts that it "grows well in Europe, but only as a shrub". Syngé (1956) and Hyams (1967) tell us that it was introduced into cultivation, presumably in England, from China in 1844, while Stucchi (1968) claims that it did not appear in Italian gardens until 1862. Bailey (1935) lists it as offered to the American horticultural trade by Kayo, Knap Hill, Sanford, and Jungle Gardens (on Avery Island, Louisiana) nurseries, but Mattoon (1953) lists only 2 sources at that time, apparently indicating a drop in popularity among gardeners.

The color of the corollas of *Clerodendrum bungei* is variously described by collectors and authors -- as "rose" on Pételot 1381, Saucedo 65, and Ventura A. 2377, as "rosadas con hormigas" on Gimale L. 576, as "rose-red" by the Baileys (1911) and Lord (1978) and on Frye & Frye 2643 and Hitchcock & Stanford 2643, as "rosy-red" by Fletcher (1972) and Graf (1963) and on Ewan 17880, as "purpurrodenrot" by Encke (1940), as "rose-pink" by Simpson (1964), as "red" on Breedlove 6837, Henry 10299, Steward & Cheo 606, Tsiang 10042, and Tsui 810, as "reddish-purple" on Steward 2305, as "red-purple" by Hallyer (1982) and on Rzedowski 20023, as "pink" on Anderson & Anderson 4668, Mexia 1914, Steward 1239, Sykes 99/68, and Tsang 27891, as "pinkish" on Chiao 885, Rock 11550, and Steward & al. 145, as "deep-pink" on Chute M. 208, as "rose-purple, open petals lighter" on Howard 16658, as "Rosein Purple acc. R.H.S. Colour Chart 1938-42" on Bracelin 1592, as "purple" on Breedlove 10440, as "purplish-red" on Tsiang 5442 and by Makins (1936) and Syngé (1956), as "purplish-red or pinkish" on Keng 594, as "purple-red" by Bean (1970), as "pink, purplish or red" by Walker (1976), as "carmine" by Van Houtte (1853), as "lilac-rose" by Hottes (1942), as "lilac to rose-purple" on Hardin & Duncan 13803, as "lavender" on Gillis 11034, as "violet" on Mello Barreto 4387 and Venturi 7209, as "crimson" on Brown s.n., and as "white" on McClure 2649.

Common and vernacular names listed for *C. bungei* are "ai-tung-chih", "amor de Pedro", "ban-bana-kusagi", "bocamelia", "brocamelia", "camelia americana", "chau shi mut li", "ch'ou mao tan ts'ao", "ch'ou m' d'ân", "flor de la rosa muerte", "fragrant clerodendrum", "glorybower", "glory tree", "Kashmir bouquet", "hortensia", "mu-tan-hua", "ngai-t'o-tau", "reddish-flowered clerodendrum", "rose glorybower", "sa sha ping", "starkduftender Losbaum", "stinkender Loosbaum", and "colcana". In the horticultural trade (American) "rose glorybower" is the recommended standardized common name.

Gibbs (1974) has found leucoanthocyanin present in the leaves. P'ei reports the species as a drug source in Sikang and Szechuan, China. McClure reports the roots used as a drug in Kwangtung -- *Herb. Canton Chr. Coll.* 165 was purchased on the drug market in Canton by E. H. Groff, who reports that the roots are dried and sold for 50--60 cents per catty Canton silver; they are boiled for 4 or 5 hours and the extract is then taken internally in the treatment of weak muscles of the ankles and legs. Cheo reports the roots cut into small pieces, soaked

in wine, and used as an aromatic. Duke & Ayensu (1985) describe the uses as follows: "Leaf: Decocted and applied externally as anodyne and anti-inflammatory; also used for ancylostomiasis, arthritis, headache, hypertension, hives, filariasis, infections, rheumatism, and toothache. Used for lung weakness and gastritis. Plant: Decocted for cough, debility and weakness. Root: Soaked in wine to treat mechanical injury."

Lindley (1838), misidentifying the species as "*Clerodendron fragrans*", says of it: "Few plants are more deserving cultivation than this, which in the gardens of China is one of the handsomest of their Flora; as is attested by a beautiful Chinese drawing preserved in the library of the Horticultural Society.....It is a conservatory plant of the easiest cultivation, and if planted in the open border in a warm place during summer, it will remain healthy and flower abundantly. But it is killed by the first frost. It grows with great luxuriance, and the chief thing to be attended to in its cultivation is a sufficient quantity of room. A damp stove seems to suit it very well. If it be in a healthy condition, the pot in which it is grown will soon be completely filled with its roots; in this state it is necessary to give it plenty of water, and syringe it freely over-head. The syringing is more particularly necessary, because, it is very liable to be infested by insects, (coccus) which, if allowed to get into the dense head of flowers, are not easily eradicated. The best soil is a rich loam, mixed with leaf-mould and sand. It is propagated freely by cuttings taken from the half-ripened wood, inserted in silver sand in the usual manner, and plunged in a hot-bed."

Hellyer (1966) avers that *C. bungei* should be "planted where it can be seen but not touched because the foliage gives off a repulsive odor when bruised". It is usually cut back to the ground by frost. Rooted suckers can be removed in autumn to start new plants. Frazzi (1953) warns us that a "damping-off" fungus attacks this plant in Argentina causing necrotic lesions to appear in the leaves. Lord (1978) agrees that the plant must be shielded from frost.

Graf (1963) describes the leaves as "quilted" and gives the period of anthesis as June to September (in the northern hemisphere). Cowley (1920) quotes Nix who describes *Clerodendrum bungei* as growing luxuriously in an English garden -- "the flowers smell deliciously sweet in the sun, but the leaves, when bruised, have a most disagreeable smell.. The plant burrows under the paths and comes up in unexpected places."

Hellyer (1982) affirms that *C. bungei* and *C. trichotomum* Thunb. are the only two species in the genus that are hardy enough to be planted outdoors in the British Isles, but that it is "usually killed to the ground level each winter but shoots up again from the roots in spring. ...Both need warm and sunny places and fairly fertile well-drained soil. They can be grown from seed, root cuttings and also from suckers dug up with roots in spring or autumn....[and] which may need to be dug out to prevent the plant spreading too far."

The Baileys (1941) inform us that in the United States *C. bungei* is adapted to be grown only in southern parts like Florida, the Gulf Coast, and southern California. In their 1976 work they assert that it is hardy in life-zone 9.

Bean (1970) comments that "In the open air this species can scarcely be regarded as a shrub. It is killed back to the ground most winters [in England], but sends up vigorous, erect, woody shoots during the summer 3 to 6 ft. high.....In August and September come the terminal rounded corymbs, each 4 to 5 in. across, densely packed with purple-red flowers.....Native of China; introduced by Fortune in 1844. It has lived for many years at the foot of a greenhouse wall at Kew, spreading rapidly by its suckers, and forming in summer a dense thicket of stems. It has proved hardy in an open position in the R.H.S. Garden, Wisley.....Easily increased by divisions in spring."

A key to distinguish this species from other cultivated species is given by Syngé (1956), for which see these present notes under *C. beth-unianum* Low. To distinguish it from the taxon with which it is most frequently confused, the following may serve:

1. Corolla mostly "doubled", its tube only slightly surpassing the calyx; calyx-lobes as long as the tube or longer; leaf-blades coarsely and irregularly toothed....*C. philippinum* f. *multiplex*.
- 1a. Corolla not "doubled", its tube several times longer than the calyx; calyx-lobes shorter than the tube; leaf-blades regularly serrate or serrate-dentate.....*C. bungei*.

Voss (1895) gives the following horticultural directions: "*C. foetidum* Bnge. ist eine jener alten, wertvollen und schönblühenden Pflanzen, die man nicht gern verschwinden sieht; ausserdem ist es, wenn gut kultiviert oder im freien Lande wachsend, auch durch seine Tracht und wegen der grossen, ansehnlichen Blätter als Gruppenpflanze empfehlenswert. Als Topfpflanze behandelt, blüht dieser Art bis tief in den Winter hinein. Kultur in jedem kräftigen, genügend durchlässigen Gartenboden; im Sommer aber bis zur Blütezeit mit dem Begriessen nicht nachlässig sein, gegentlich auch Dungwasser (Mistjauche oder aufgelösten tierischen Dung, welchem entweder aufgelöstes phosphorsaures Kali oder aufgelöstes Thomasschlackenmehl beizufügen ist, beides natürlich sehr stark verdünnt). Am besten gedeiht die Pflanze, wenn man sie an einen warmen aber freien, lustigen Standort ins Freie pflanzt, zu Anfang des Herbstes mit genügendem Erdballen aushebt und sie (nachdem man die Ausläufer entfernt hat) in ausreichende aber knapp angepasste Töpfe pflanzt, die Erde tüchtig durchfeuchtet und die Pflanze, damit die Blätter nicht leiden, einige Tage in einem geeigneten Raume geschlossen und schattig hält. Haben die Wurzeln wieder Boden gefasst, die Pflanzen sich also erholt, so kommen sie in ein Kalt- oder Lauwarmhaus. Je wärmer der vorausgegangene Sommer gewesen, je besser also die Stengel ausreifen konnten, desto früher wird die Blütezeit eintreten. Stellt man nach und nach einzelne Pflanzen wärmer, so kann man die Blütezeit bis tief in den Winter hinein verlängern. Nach der Blüte allmählich Ruhezeit eintreten lassen und die Pflanze möglich trocken, auch kühl halten, etwa wie Fuchsien und Hortensien. Topfpflanzen kann man in ziemlich geräumigen Töpfen im Sommer im Freien, im lustigen Kalt- oder hellen, lustigen Zimmer aufstellen. Kräftige Erde, viel Wasser und namentlich auch Düngung sind dann unentbehrlich. Zwar hält dieser Halbstrauch in Deutschland unter guter Laubdecke, und nachdem man zuvor die Stengel etwa 20 cm hoch über dem Boden abgeschnitten hat, auch im Freien aus, die nächstjährigen, bis 1 m. und

drüber hohen Stengel kommen dann aber meist so spät im Herbst zum Blühen, dass der Frost die Blüten gewöhnlich vorher zerstört. Ratsamer ist also Überwinterung in Töpfen. Vermehrung durch Grundsprosse, auch durch Teilung leicht, ebenso durch Stecklinge und 'Wurzelschnittlinge'. Anzucht aus Samen. Aussaat in Töpfe und warm halten. -- Keimkraft der Samen meist nur 1 Jahr; Keimung in 4--6 Wochen."

Planchon (1853) reviews the tangled history of *Clerodendrum bungei*: "Trois arbustes bien distincts ont reçu le nom de *Clerodendron foetidum*, D'abord, l'espèce primitive à laquelle ce nom doit rester, et dont, nous transcrivons en note la diagnose, comme objet de comparaison. C'est une plante du Népal, à feuilles elliptiques, à calice plus long que le tube de la corolle: elle n'existe pas, que nous sachions, dans nos jardins. La seconde espèce, signalée dans la Revue Horticole, en 1851, d'après des exemplaires que l'on cultivé à Paris depuis une douzaine d'années, nous paraît presque identique avec une prétendue forme à fleurs simples du *Clerodendron fragrans*, forme déjà publiée dans le Botanical Register, en Août 1838, mais sans indication d'origine [C'est évidemment cette plante du Botanical Register que M. Schauer, dans le Prodromus de De Candolle (Tom. XI, p. 666). signale, après Lindley, comme le type à fleurs simples du *Clerodendron fragrans*, et dont il indique l'introduction comme récent à la date de 1847. Voici pourtant sur quelles raisons se fonde notre savant collaborateur, M. Decaisne, pour considérer cette plante comme espèce à part, sous le nom manuscrit de *Clerodendron Lindleyi*. 1^o Le type à fleurs simples du *Clerodendron fragrans* figuré par Ventenat (Malmais. t. 70), et qui fleurit en France, dans le jardin de Cels, vers le commencement du siècle, a des corolles à limbe bien plus large que le *Cl. Lindleyi*. 2^o Le *Clerodendron fragrans* est une plante délicate, qu'on ne cultive jamais en pleine terre à Paris, et dont les racines ne tracent pas l'autre espèce est, au contraire, rustique et ses racines traçantes. Ce que nous disons ici, du reste, se rapporte spécialement à la plante cultivée au Museum de Paris, sous le nom de *Clerodendron foetidum*, plante qui diffère un peu de celle du Botanical Register en ce que ses fleurs sont inodores (et non presque aussiodorantes que celles du *C. fragrans*) et que ses jeunes pousses surtout sont convertes d'un velouté de couleur violette. Y aurait-il encore là deux espèces confondues? Qui étudiera jugera. Reste la troisième espèce que nous appellerons avec Steudel *Clerodendron Bungei*, et dont le portrait dessiné sur le vivant dans l'établissement Van Houtte, n'existe dans aucune publication horticole.

"C'est encore à la patrie du *Camellia*, des Pivoines Moutan, des Chrysanthèmes et des Reines Marguerites, c'est encore aux inestimables travaux de M. Fortune, que nous devons cette précieuse addition à nos arbustes d'ornement. Bunge avait observé celle belle espèce dans les jardins de Pékin; nous ignorons où Fortune en a pris les exemplaires qu'il a récemment introduits; mais, bien que ces derniers n'aient fleuri chez M. Van Houtte qu'en serre froide, il est probable que sous le climat de la Belgique, l'arbuste pourra, comme le *Clerodendron foetidum* du jardin botanique de Paris (*Cl. Lindleyi* Dne. Mss.) végéter en pleine terre, en perdant l'hiver ses pousses aériennes et se conservant par les dragons souterrains.

"Très rapprochée par le feuillage des *Clerodendron fragrans* et

Lindleyi, Dne Mss., notre plante s'en distingue aisément par l'absence presque totale de longues bractées glandulifères entre les fleurs du corymbe et surtout par ses calices à dents ovales et courtes, au lieu d'être longues et subulées. Les feuilles rappellent celle des *Catalpa* et du *Paulownia imperialis*; les corymbes effacent pour la grandeur et l'éclat ceux du *Fuchsia arborescens* (*syringaeiflora*) qu'une certaine ressemblance générale en fait rapprocher au premier abord."

Van Houtte (1853) adds: "M. Standish me témoignait le regret de ce qu'une aussi belle plante dût porter le nom de *foetidum*. Elle est munie, en effet, d'un ample feuillage, surmonté de gros bouquets de fleurs du plus beau carmin, et ce nom fort ingrat paraissait lui porter malheur. Mais les vœux de M. Standish sont accomplis: D. Don, en nommant antérieurement *C. foetidum* une espèce de l'Inde orientale, a par cela même infirmé le nom de celle qui nous occupe, originaire de la Chine septentrionale. Steudel l'a dédiée, suivant l'usage, au botaniste qui venait, lui aussi, déshériter ce beau genre. C'était assez d'un *foetidum*, d'un *calamitosum*, d'un *depauperatum*, d'un *infortunatum*! Cruel ostracisme immérité!

"Depuis que j'ai écrit ces lignes, dans mon catalogue (adit 1855), j'ai acquis la certitude que cette plante est parfaitement rustique. [Le lecteur voudra bien remplacer dans l'inscription les mots serre froide par: pleine terre.] Dès le printemps 1853, nous en avons livré quelques pieds à la pleine terre de ce jardin. Ces plantes ont luxueusement végété, et leurs drageons souterrains se rencontrant maintenant à 75 centimètres de profondeur, il est hors de doute que la plante est acquise à nos jardins. Elle se prête, du reste, à tous les genres de cultures: loin d'exiger la serre chaude, elle se contente d'une orangerie, voire même de l'humble fenêtre de l'artisan; -- on peut la tenir en pot, dès l'automne, en serre chaude, pour l'avoir en fleurs pendant l'hiver; -- où, enfin, la cultiver en pleine terre, pour en jouir pendant l'été dans nos massifs, où elle rappellera une fois de plus à la reconnaissance de l'horticulture le nom de son illustre introducteur."

Diels (1900) cites *Rosthorn 207, 259, & 2365* from central China; in his 1913 work he cites *Forrest 366, 1023, & 3001*. Winkler (1922) cites *Limpricht 1570 & 1629* from Szechuan. Walker (1976) cites *Naito s.n.* and *SIRI 5833* from Okinawa. Bravo Hollis & Ramirez (1951) cite their no. 370 from Mexico.

The *Trin. Bot. Gard. Herb. 1360* collection cited by me as *C. bungei* in 1939 is anomalous in having entire-margined leaf-blades. It somewhat resembles *C. colebrokianum* Walp. in this and other respects, but the presence of glandulose foliaceous bracts in the inflorescence, glandulose acuminate calyx-teeth, etc., seem to point more directly to *C. bungei*. The calyx-teeth are not nearly long enough, nor the bracts dense enough, for *C. lindleyi* Decaisne. Possibly it may represent a hybrid, but for the time being I am placing it in *C. colebrokianum*; *Trin. Bot. Gard. Herb. s.n.*, on the other hand, is quite ordinary and normal *C. bungei*, with typical serrate leaf-blade margins.

Numerous errors, in addition to the above-mentioned ones, occur in the literature of *C. bungei*. Some authors refer to the species as a "tree" or to the flowers as "drooping" and "ill-smelling" -- statements which seem to be incorrect. Darlington & Wylie (1956) refer to the

species as native both to China and tropical America -- actually it is only introduced in the New World. Pitschman and his associates (1965) describe the leaves as entire or indistinctly serrate beyond the middle and the inflorescence as "seitenständig" -- all incorrect statements.

Lindley (1838) considered that taxon to be the single-flowered form of "*Clerodendron fragrans*", which it obviously is not, and his beautiful colored illustration is thus mis-labelled. Similarly, the illustration in Dean's work (1968) inscribed as *Clerodendron foetidum* actually represents *Clerodendron philippinum* f. *multiplex* (Sweet) Mold. The *Clerodendron foetidum* ♂ *integrifolium* of Hasskarl is *C. colebrokianum* Walp.

The Index Kewensis reduces *Volkameria buchanani* Roxb. to *Clerodendron foetidum*, but it is actually the name-bringing synonym of *Clerodendron buchanani* (Roxb.) Walp.; *Volkameria foetida* Buch.-Ham. is also sometimes regarded as synonymous with *Clerodendron bungei*, but actually is a synonym of *Caryopteris foetida* (D. Don) Thellung.

The Baillon (1891) reference in the bibliography of *Clerodendron bungei* is often cited as "1892", the titlepage date; the Angely (1971) work is sometimes mis-cited as "1970", again the titlepage date. The Bunge (1832) reference is sometimes cited as "1831" for some reason as yet unknown to me.

Material of *C. bungei* has been abundantly misidentified and distributed in herbaria as *C. fragrans* Vent., *C. intermedium* Cham., *C. pleiosciadium* Gürke, *C. trichotomum* Thunb., *C. urticifolium* Willd., and even as *Acanthaceae*. On the other hand, the Ferris 12092, distributed as *C. bungei*, actually is *C. canescens* Wall. while Ching 1994, En 2021, Fong 19, Maxwell 184, and Pittier 13538 are *C. lindleyi* Decaisne, Blum & Kimmel 2281, Ebinger 40, and Tyson 4207 are *C. paniculatum* L., Herb. Univ. Nanking 656 is *C. trichotomum* Thunb., Schoch 150 is the type collection of *C. yunnanense* Hu, Collector undetermined s.n. [20th March 1803] is *Caryopteris foetida* (D. Don) Thellung, and Smith 1173 is not verbenaceous.

Citations: SOUTH CAROLINA: Greenville Co.: Mrs. Taylor s.n. [Greenville, Nov. 18, 1931] (H--5425). GEORGIA: St. Simons Island [Glynn Co.]: Hardin & Duncan 13803 (Hi--57562, It, Mi, W--21755446, We); Thorne, Ford, & Goodwin 2229 (It). FLORIDA: Alachua Co.: Hueber s.n. [near Gainesville, 6.14.'28] (N); G. F. Weber s.n. [Gainesville, June 14, 1928] (N, N), s.n. [Gainesville, 1928] (F1--20952, F1--20953). Dade Co.: Ledin s.n. [Miami, Oct. 14, 1950] (Ft, Ws). Duval Co.: Curtiss s.n. [Jacksonville] (N). ALABAMA: Mobile Co.: E. W. Graves 949 (E--975615, W--98447!). MISSISSIPPI: Adams Co.: Compton 6 (A); F. Cook s.n. [Natchez, June 26, 1925] (W--1325924). Claiborne Co.: Guthrie 284 (N). LOUISIANA: East Baton Rouge Par.: T. Brown s.n. [May 6, 1975] (Lv). Iberia Par.: Thomas & McCoy 84459 (Ld). Orleans Par.: Ewan 17680 (Ba, Tl); Penfound s.n. [Nov. 20, 1936] (Tl). Ouachita Par.: C. Smith 1327 (Ne--1825). Pointe Coupee Par.: M. Chaney 200 (Lv). Rapides Par.: Thomas & Pias 61836 & 3999 (Ne--150053). Tangipahoa Par.: H. R. Wilson 236 (Lv). Terrebonne Par.: Wurzelow s.n. [July 8, 1914] (W--694319, W--694320), s.n. [July 15, 1914] (Lv, N). TEXAS: Harris Co.: Thurrow 13 (W--1244747). MEXICO: Chiapas: Breedlove 6055 (Ac), 6837 (Ac), 10440 (Ld, Mi). Distrito Federal: Paray 550 (Ip).

Hidalgo: Anderson & Anderson 4668 (Mi, N); Chute M. 208 (Mi); O. M. Clark 7001 (N); Frye & Frye 2643 (Du--285407, En, Hp, N, Or--43426, Pl--110832, Rs--25585, Se--65852, W--1791027); Gimete L. 576 (Mi, N, Tu--186517); Hitchcock & Stanford 2643 (Po--260128), 7290 (Du--361324, Pl--130338, Po--266816, Se--59860, W--1806864); Kenoyer 432 (F--915113); H. E. Moore 2998 (N); Sharp 441781 (N). México: Hinton 3879 (K). Morelos: J. M. Hill 45 (Au--169067). Nuevo León: Abbón 42 [Ar-sène 6226] (A, E--845036, Ld, N, P, Ur, W--1002521), s.n. [1911] (B). Puebla: Davila s.n. [28-VII-1963] (Ip); Fagoaga s.n. [Necaxa] (Au); M. Martínez s.n. [Nov. 1943] (N); J. Rzedowski 20023 (Au--249491, Ip, Ip, Mi, Mi). San Luis Potosí: M. T. Edwards 449 (F--918331); Rowell, Webster, & Barkley 17M349 (Au--142506, Me--167870). Veracruz: Dodds 75 (Ln--19927, Mi, N); G. L. Fisher 35509 (E--1097165, F--782579, I, N); García Saucedo 65 (Ld, Mi, Tu--181549, Ws); F. W. Johnson s.n. [Cordoba, 9-26-06] (N); M. Martínez s.n. [Banderilla, Sept. 1942] (Du--316228); Matuda 947 (Mh, Mi, Mi); Smyth 159 (W--1209012); Ventura A. 2377 (Au--303157, Mi, N). CUBA: Havana: C. F. Baker s.n. [Sept. 1, '07] (Po--64689). PUERTO RICO: Barrett s.n. [June 1925] (N). COLOMBIA: Cundinamarca: Antonio s.n. [Apolinar-Maria 96] (F--1007419). BRAZIL: Minas Gerais: F. C. Hoehne s.n. [Herb. Inst. Biol. 20236] (N, Sp). Rio de Janeiro: Melo Barreto 4387 (Ja--32257). São Paulo: Decker & [Herb. Inst. Biol. 33189] (Sp); C. Duarte 240 [Herb. Inst. Biol. 15155] (N, Sp); Hatschbach 2805 (Sm, W--2059470); Heiner s.n. (S). ARGENTINA: Catamarca: Venturi 7209 (Gg--160638). Tucumán: Schreiter 972 [Herb. Osten 15070] (Ug); Venturi 14 (A, N, W--1591208). SWITZERLAND: Usteri 17405 (Mu). INDIA: Sikkim: G. King s.n. [1879] (X). CHINA: Anhwei: Herb. Univ. Nanking 657 (Ca--230443); E. D. Merrill 11260 (Ca--992160, N); A. N. Steward 1239 [Herb. Univ. Nanking 5479] (Ca--248796), 2305 (Ph). Chekiang: Barchet 565 (W--596128); Chiao 885 [Herb. Univ. Nanking 14185] (Ca--325115, Go, W--1426667); Faber 353/87 (K); Hu 134 (Ca--232280); Keng 594 (Ca--361627). Honan: Skatschkow s.n. [Pekin] (Br). Hunan: Dahlström 287 (S); Fan & Li 142 (Bz--18925), 560 (Bz--18924). Hupeh: H. C. Cheo 18222 (Gg--234259, N); Chow 833 (N); W. Y. Chun 3888 (It); Chun & Chien 5051 [Herb. Univ. Nanking 8033] (Ca--261517); A. Henry 189 (W--800030); E. H. Wilson 2224 (Gg--32018, W--777406). Kiangsi: L. H. Bailey s.n. [July 9, 1917] (Ba, Ba); Tsiang 10042 (N). Kiangsu: Chiao 12969 (Bz--19270). Kwangsi: Steward & Cheo 606 (S); W. T. Tsang 27891 (Ca--1286200, W--1757310). Kwangtung: Mc Clure 2649 [Herb. Canton Chr. Coll. 9207] (Oa); Tsi 543 (N, W--1754721), 810 (N, W--1754875). Kweichow: Steward, Chiao, & Cheo 145 (N); Tsiang 5442 (N, S, W--1554962). Szechuan: T. Y. Cheo 13 (Ca--10398); Fang 5979 (Du--333837), 9278 (Du--333625); Farges s.n. (W--2497100); Limpricht 1570 (N--photo), 1629 (N, N--photo). Yunnan: W. C. Cheng 1991 (W--1671702); Forrest 8403 (S); A. Henry 10299 (N); J. F. Rock 11550 (W--1511097). Province undetermined: Faber 42 [Yangtze-Kiang] (K); Hers 2454 (Br). CHINESE COASTAL ISLANDS: Hainan: W. Y. Chun 6580 (Ca--261517). VIETNAM: Pételot 1381 (Ca--234426), 1397 (Ca--234350). RYU-KYU ISLANDS ARCHIPELAGO: Okinawa: Naito s.n. [3/X/1945] (Ks); Walker, Tawada, & Amano 5833 (N). CULTIVATED: Alabama: Koeppe, Justics, & Isely s.n. [Montgomery, Oct. 3, 1943] (Dp--38402). Arizona: M. E. Caldwell J.5 (Tu--172580). Austria: Beck s.n. [Hort. Eisgrub.

1895] (V); *Herb. Hort. Bot. Vindob. s.n.* (V, V, Vu); *Herb. Von Bergler s.n.* (V). Belgium: *Bowden 6722-39* (Ba); *Herb. Hort. Brux. s.n.* [H. B. Lov. 1857] (Br), *s.n.* [14 Sept. 1889] (Br); *Herb. Martius s.n.* [H. B.] (Br); *Herb. Thensis ser. II.909* (Br, Br); *Lange s.n.* [Sept. 9, 1896] (Cp); *Martens s.n.* [H. B. Francos 1857] (Br). Brazil: *Glaziou 17163* (B, Br, Cp, P); *Luederwaldt s.n.* [Herb. Mus. Paulista 2139; Herb. Inst. Biol. 15736] (N, Sp); *Mello Barreto 4387* (F--909821); *D. I. Stehle 994* (N, Sp). California: *Bracelin 1592* (Ba, Gg--339903, Go); *Bradbury 712* (Ba); *Epling s.n.* (E--946571); *E. Goodman s.n.* [San Francisco, Aug. 1920] (Gg--32017); *Herb. Univ. Calif. Los Angeles s.n.* [September 7, 1943] (La); *K. D. Jones 1757* (N); *Lenington s.n.* [Summer 1930] (It); *E. C. Marquand s.n.* [July 30, 1935] (N); *McKee s.n.* [Oct. 21, 1916] (Ca--197696); *R. Moran s.n.* [March 1949] (Ba); *Walther s.n.* [Santa Barbara, Sep. 1919] (Gg--32041), *s.n.* [Piedmont, Oct. 18, 1922] (Gg--32016), *s.n.* [Golden Gate Park, Aug. 1926] (Gg--142672), *s.n.* [Golden Gate Park, July 1931] (Gg--189231), *s.n.* [Golden Gate Park] (A); *Wells, Lammeris, & McClintock s.n.* [July 25, 1944] (Gg--361160). China: *Bretschneider 573* (K); *Herb. Canton Chr. Coll. 165* (Oa). Cuba: *Anias s.n.* [Herb. Cub. Estac. 6944] (Es); *C. F. Baker 800* (B, Ca--145517, Po--63797, Po--64693), *s.n.* [Santiago de las Vegas, Sept. 1, '07] (B, Ca--147939), *s.n.* [Santiago de las Vegas, Dec. 12, '08] (B); *Herb. Cub. Estac. 2001* (Es); *Lima 415* (Ha). District of Columbia: "A. L. S." *s.n.* [Bot. Gard., Sept. 25, 1886] (W--147606); *Tidestrom 614* (Ar--19844). Egypt: *Din s.n.* [13/9/1971] (Gz). El Salvador: *Calderón 731* (G, N, W--1151689). England: *Baltys s.n.* [Aug. 23] (K); *Gamble 30089* (K); *Herb. Hort. Ware s.n.* [10/79] (K); *Herb. Roy. Hort. Soc. Gard. Wisley s.n.* [August 1933] (Ba); *Stearn s.n.* [Cambridge Bot. Gard., 16. X.1932] (Ba); *Winchester s.n.* [Sept. 1885] (K). Florida: *Beadel s.n.* [22 August 1945] (Ba); *Gillis 11034* (Ld); *Hume s.n.* [Orlando, July 21, 1930] (Ba, Ba); *Ledin s.n.* [Miami, Oct. 14, 1950] (Ft); *Rhoads s.n.* [Gainesville, 4 June 1937] (Fl--26960); *Spence s.n.* [St. Petersburg, 20 Sept. 1933] (Fl--20956); *Tidestrom 4210* (Ar--19843). France: *Gadeceau s.n.* [1890] (Bm); *Pitard s.n.* [J. Bot. Bordeaux] (N). Georgia: *H. E. Moore s.n.* [23 August 1957] (Ba). Germany: *Bornmüller s.n.* [Tege, VIII.1882] (B); *Collector undetermined s.n.* [Oktober 1975] (Mu); *Herb. Hort. Bot. Monac. s.n.* [24.X.1890] (Mu--3847), *s.n.* [4.7.1891] (Mu--4044). Hawaiian Islands: *C. Potter s.n.* [Foster Gardens, 8/25/59] (Bi). Louisiana: *Arsène 11018* (W--1032624); *L. H. Bailey s.n.* [July 11, 1918] (Ba); *C. Smith 1591* [Palynolog. Lab. L.S.U. pollen slide 472] (Ne--1312). Maryland: *P. G. Russell s.n.* [S.P.I. 76930] (Ar--3253). Mexico: *Mexia 1914* (Gg--157090); *Rosas R. 429* (Ld). Mississippi: *Van Winkle s.n.* [Winona] (Ur). Missouri: *Herb. Jesup s.n.* (Dt). Netherlands: *Schouten s.n.* [13 Oct. 1924, Middelburg] (Ut). New Zealand: *W. R. Sykes 99/68* [Herb. Bot. Div. D.S.I.R. 181463] (Ld). North Carolina: *J. M. Matthews s.n.* [Sept. 4, 1935] (Hi--59419). Puerto Rico: *R. A. Howard 16658* (Ba); *Prey s.n.* [1901] (G). Russia: *Regel s.n.* [Herb. Bot. Petrop. 57.8] (L). South Africa: *Nat. Herb. Pretoria "A"* (Br). South Carolina: *McMaster s.n.* [Aug. 29, 1933] (Ba). Switzerland: *Herb. Bernet s.n.* [Sept. 1867] (X); *Herb. Hort. Basil. s.n.* [14 Sept. 1864] (M); *Herb. Hort. Genève. s.n.* [Oct. 1884] (Cb); *Herb. Jard. Bot. Genève. s.n.* [25 Sept. 1935] (Cb, Cb, Cb); *Herb. Jard. Valey-*

res s.n. [Aôut 1862] (X), s.n. (X); *Herb. Serres Rivage Genève* s.n. [7 Sept. '74] (X), s.n. [9 Oct. '75] (X); *Reuter* s.n. [Hort. Genève., 14 Aôut 1862] (X). Texas: *Her. Univ. Texas* s.n. (Au). Trinidad: *Trin. Bot. Gard. Herb.* s.n. ["b"] (R). MOUNTED CLIPPINGS & ILLUSTRATIONS: Eisenstaedt, *Life* 30 (8): 66. 1951 (Ld); "N. K. G.", *Gard. Chron.*, ser. 3, 84: 207, fig. 94. 1928 (Ba); Lindl., *Edwards Bot. Reg.* 24: pl. 41. 1838 (Ld, N); H. N. Moldenke color slide 477 (Ld); Planch., *Fl. Serres*, ser. 1, 9: 16/17. 1853 (Ld); Preston, *Gard. Chron.*, ser. 3, 123: 132, fig. 65. 1948 (Ba); E. H. Walker, *Fl. Okin. South. Ryuk.* 890--891. 1976 (W).

CLERODENDRUM BURUANUM Miq., *Ann. Mus. Bot. Lugd.-Bat.* 3: 252--253 [as "Clerodendron"]. 1867; H. Hallier, *Meded. Rijks Herb. Leid.* 37: 68 [as "buruano"]. 1918.

Synonymy: *Clerodendron buruanum* Miq., *Ann. Mus. Bot. Lugd.-Bat.* 3: 252--253. 1867. *Clerodendron buruanum* f. *typicum* Bakh. in Bakh. & Lam, *Nova Guinea* 14, *Bot.* 1: 171. 1924. *Clerodendron rubuanum* Miq., in herb.

Bibliography: Miq., *Ann. Mus. Bot. Lugd.-Bat.* 3: 252--253. 1867; Jacks. in Hook. f. & Jacks, *Ind. Kew.*, imp. 1, 1: 560. 1893; H. Hallier, *Meded. Rijks Herb. Leid.* 37: 67 & 72. 1918; H. J. Lam, *Verbenac. Malay. Arch.* 274 & 363. 1919; Bakh. in Lam & Bakh., *Bull. Jard. Bot. Buitenz.*, ser. 3, 3: 76, 90--91, 108, & viii. 1921; Bakh. in Bakh. & Lam, *Nova Guinea* 14, *Bot.* 1: 171. 1924; Bakh., *Journ. Arnold Arb.* 10: 73. 1929; Bakh. in White, *Journ. Arnold Arb.* 10: 264. 1929; Fedde & Schust., *Justs Bot. Jahresber.* 53 (1): 1072. 1932; Bakh., *Journ. Arnold Arb.* 16: 71. 1935; Beer & Lam, *Blumea* 2: 224. 1936; Mold., *Known Geogr. Distrib. Verbenac.*, ed. 1, 63, 66--68, & 89. 1942; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, imp. 2, 1: 560. 1946; Mold., *Known Geogr. Distrib. Verbenac.*, ed. 2, 142, 148--150, & 180. 1949; Mold., *Résumé* 187, 193, 197, 198, 200, 215, & 448. 1959; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, imp. 3, 1: 560. 1960; Mold., *Résumé Suppl.* 6: 9 (1963) and 12: 8. 1965; Mold., *Fifth Summ.* 1: 322, 329, 331, 335, 338--340, 441, 449, & 459 (1971) and 2: 863. 1971; Mold., *Phytol. Mem.* 2: 312, 320, 322, 325, 328--330, 348, & 534. 1980; Mold., *Phytologia* 57: 468 (1985) and 58: 208 & 281. 1985.

A tall shrub or small tree, 3--8 m. tall; branchlets obtusely tetragonal; leaves decussate-opposite; petioles 2.5--10 cm. long, grayish-pubescent; leaf-blades oblong or elliptic, 13--21 cm. long, 5--12.5 cm. wide, dark-green above, pale beneath, apically acuminate, marginally entire, basally truncate or subcordate, sometimes centrally cuneate and somewhat decurrent into the petiole, subglabrous above (except for the pubescent venation), sparsely pubescent beneath, the pubescence denser on the venation, the venation impressed above; secondaries 6--8 pairs; inflorescence paniculate, lax, few-flowered, 5--10 cm. long, grayish-pubescent; peduncles green; bracts foliaceous, green; bracteoles subulate; pedicels shorter or longer than the calyx; calyx green or light-green, sometimes reddish or only basally lilac, about 5 mm. long, externally gray-pubescent except on the tips of the segments, the teeth deltoid, apically acute, about half as long as the tube; corolla white or cream-color, often somewhat lilac in the throat,

1.5--2 cm. long, externally gray-pubescent, the tube apically lilac, the lobes 4--10 mm. long, apically rounded, less pubescent than the tube; stamens exerted; filaments white; anthers grayish-yellow to dark-brown; style white; stigma shortly bifid, lilac; ovary externally glabrous; fruiting-calyx pink or rose-color; fruit dull greenish-black.

This species is based on *Teijsmann H.B.1874* from Kageli and *H.B. 5250* from Oki, Buru island, in the Molucca Islands. Collectors have encountered the plant at the foot of hills and in rainforests (where Beer & Lam report it "common"), at 60--1450 m. altitude, in flower in April, May, July, and September, and in fruit in September.

Vernacular names reported for the species are "loeboe aloeng", "pangel pangel riembo", "pangi pangi riembo", and "pangil poetib".

Bakhuizen (1921) describes his var. *typicum* as "Folia sparse pubescentia vel nervis exceptis subglabra; corollae tubae elongatus, calycem duplo-triploque superans, 1.2--2 cm. longus" and bases it on *Lam 669, 1183, and 1218* from West Irian. He includes in the synonymy of what he regards as *C. buruanum* the following taxa: *C. lindavianum* Lauterb., *C. versteegi* Pulle, *C. vanoverberghii* Merr., *C. catalpifolium* H. Hallier, *C. brunfelsiiflorum* H. Hallier, and *C. albiflos* H. J. Lam, citing *Teijsmann 1874* from Buru, *Teijsmann s.n.* from Amboina, and *Schlechter 14455* and *Versteeg 1396* from New Guinea. I regard the Lauterbach and Pulle taxa as *C. buruanum* f. *lindavianum* (Lauterb.) Bakh., the Merrill and Lam taxa as valid species, and *C. brunfelsiiflorum* also as valid with *C. catalpifolium* as a synonym.

Lam (1919) cites for *C. buruanum* only *H. Bog. 5250* from Buru and *1160* from Sumatra. He comments "cf. *C. condensatum*", but fails to mention anything relevant in his discussion of the latter taxon. Beer & Lam (1936) cite nos. *3970* and *5448*, giving the species' overall distribution as the Philippines, Moluccas, and New Guinea.

It should be noted that, according to its accompanying label, the *Herb. Hort. Bot. Bogor. XI.B.XIX.120*, cultivated in the Buitenzorg garden, originated in Borneo.

Material of *C. buruanum* has been misidentified and distributed in some herbaria as *C. infortunatum* L. On the other hand, the *Carr 15156*, distributed as *C. buruanum*, actually is *C. brachyanthum* Schau.

Citations: GREATER SUNDA ISLANDS: Borneo: *Endert 1463* (Bz--72719), *2618* (Bz--72725). Sumatra: *Buwalda 6867* (Bz--72580); *Teijsmann H.B. 1160* (Ut--53399). LESSER SUNDA ISLANDS: Flores: *Voogd 1791* (Bz--19702, N). MOLUCCA ISLANDS: Amboina: *Pijl 715* (Bz--19703, Bz--19704); *Teijsmann s.n.* [Hila] (Bz--18926, Bz--18927, Bz--18928). Buru: *Binendyk s.n.* (Bz--18932); *Teijsmann H.B.1874* (Bz--18929--cotype, Bz--18930--cotype, Bz--18931--cotype, Ld--photo of cotype, N--photo of cotype, Ut--11568--cotype), *H.B.5250* (Ut--11567--cotype). NEW GUINEA: West Irian: *Aet 85* (Bz--72583); *Docters van Leeuwen 9015* (Bz--72665), *11301* (Bz--72657, Bz--72658); *Herb. Hort. Bogor. 18955*(Bz); *Kanehira & Hatusima 12326* (Bz--18934); *Lam 669* (Bz--18937), *1183* (Bz--18954, N), *1218* (Bz--18935, Bz--18936, N). NEW GUINEAN ISLANDS: Japen: *Aet & Idjan 532* [Van Dijk 532] (Bz--72977, Bz--72978). CULTIVATED: Java: *Herb. Hort. Bot. Bogor. VI.B.XIX.120* (Bz--25519, Bz--25812, Bz--25813, Bz, Bz, N), *VI.B.XIX.121* (Bz--25814, Bz--25815, N), *XII.B.III.38* (Bz--19700, Bz--19701, N).

CLERODENDRUM BURUANUM f. *LINDAVIANUM* (Lauterb.) Bakh. in Bakh. & Lam, Nova Guinea 14, Bot. 1: 171 [as "*Clerodendron buruanum* f. *lindavianum*"]. 1924; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 67, 68, & 89. 1942.

Synonymy: *Clerodendron lindavianum* Lauterb. in K. Schum. & Lauterb., Nachtr. Fl. Deutsch. Schutzgeb. Südsee 372--373. 1905. *Clerodendron versteegi* Pulle in Lorentz, Nova Guinea 8 (2): 403. 1910. *Clerodendron lindavianum* Lauterb. ex H. Hallier, Meded. Rijks Herb. Leid. 37: 68 [as "*lindaviano*"]. 1918. *Clerodendron versteegi* Pulle apud H. Hallier, Meded. Rijks Herb. Leid. 37: 67. 1918. *Clerodendron buruanum* f. *lindavianum* (Laut.) Bakh. in Bakh. & Lam, Nova Guinea 14, Bot. 1: 171. 1924. *Clerodendron lindavianum* Laut. apud Bakh. in Bakh. & Lam, Nova Guinea 14, Bot. 1: 171 in syn. 1924. *Clerodendron versteegii* Pulle apud Bakh. in Bakh. & Lam, Nova Guinea 14, Bot. 1: 171 in syn. 1924. *Clerodendron buruanum* var. *versteegii* (Pulle) Bakh., in herb.

Bibliography: Lauterb. in K. Schum. & Lauterb., Nachtr. Fl. Deutsch. Schutzgeb. Südsee 372--373. 1905; Prain, Ind. Kew. Suppl. 3, imp. 1, 44. 1908; Pulle in Lorentz, Nova Guinea 8: 403 (1910) and 8: 687. 1912; Prain, Ind. Kew. Suppl. 4, imp. 1, 50. 1913; Wernh. in Ridl., Trans. Linn. Soc. Lond., ser. 2 Bot. 9: 137. 1916; H. Hallier, Meded. Rijks Herb. Leid. 37: 67, 68, & 72. 1918; H. J. Lam, Verbenac. Malay. Arch. 288, 292, & 364. 1919; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 90, 109, & ix. 1921; H. J. Lam in Lauterb., Engl. Bot. Jahrb. 59: 96--97. 1924; Bakh. in Bakh. & Lam, Nova Guinea 14, Bot. 1: 171. 1924; Bakh., Journ. Arnold Arb. 10: 73. 1929; Bakh. in White, Journ. Arnold Arb. 10: 264. 1929; Fedde & Schust., Justs Bot. Jahresber. 53 (1): 1072 (1932) and 60 (2): 572. 1941; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 67, 68, & 89 (1942) and ed. 2, 149, 150, & 180. 1949; Prain, Ind. Kew. Suppl. 3, imp. 2, 44 (1958) and 4, imp. 2, 50. 1958; Mold., Résumé 192, 194, 200, 204, 261, 266, 271, & 448. 1959; Mold., Résumé Suppl. 12: 8. 1965; Mold., Fifth Summ. 1: 322, 335, 339, 340, 441, & 459 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 312, 325, 329, 330, & 534. 1980; Mold., Phytologia 57: 468 & 473. 1985.

A small, erect, often compact tree or treelet, to 15 m. tall, shrub, 1--5 m. tall, or even herbaceous and 1 m. tall [the mountain form at 2070 m. altitude]; trunk to 12.5 cm. in diameter and 20 cm. girth, the bole often to 2 m. long; branches slender, terete, often wide-spreading, fulvous-tomentose; branchlets terete; twigs green, pilose with pale-brown hairs; bark thin, smooth and slightly flaky, green or gray-green to pale-gray or gray, sometimes pale-brown mottled with light-gray; inner bark white, 2.5 mm. thick; wood white or straw-color, odorless, without exudate; lenticels mostly brown; leaves decussate-opposite, anisophyllous; petioles 4--11.5 cm. long, appressed tawny- or fulvous-tomentose; leaf-blades membranous or thin-chartaceous, ovate or subcordate-ovate, 13--22 cm. long, 7--16.5 cm. wide (at the lower quarter), mostly dark-green and shiny above and pale beneath (in drying dark brown-green above and paler beneath), apically acute or short-acuminate (the acumen acute or obtuse), marginally entire, basally obtuse or rounded to subcordate, softly and rather densely appressed pilose-pubescent on both surfaces but especially above and on the venation beneath with pale-brown hairs, glandulose beneath; venation yellowish-green and prominent beneath, impressed above; secondaries 7--9 per side,

strong, obliquely ascending; inflorescence terminal, paniculate-subcorymbose, pyramidal, compact, 10--21 cm. long, 7--16 cm. wide; peduncles green, 3--7.5 cm. long, thinly silvery-pilose; bracts foliaceous; bracteoles linear-lanceolate, about 5 mm. long; pedicels 3--5 mm. long; flower-buds green or light-green, pilosulous; cymes di- or trichotomous; flowers pedicellate, fragrant or odorless [depending on time of day?]; calyx infundibular, 5--7 mm. long, green or greenish-white to pink, violet, lilac, or red, externally with white or pale-brown pilose pubescence and often also with peltate scales, internally glabrous, the tube to 7 mm. long, sometimes brown, the 5 teeth or lobes triangular, 2--3 mm. long, apically white and acuminate; corolla hypocrateriform, white, sometimes pink or lilac, externally glabrous, the throat usually pink, the tube mostly very short, only 6--10 mm. long, scarcely surpassing the calyx, mostly pink, glabrous or nearly so, glandulose, the lobes oblong, 4--7 mm. long, apically rounded, mostly white, often wrinkled, pubescent and glandulose along the mid-vein; stamens 4, exserted 1.5--2 cm. beyond the corolla-mouth, inserted in its tube; filaments about 2 cm. long, white; anthers dorsifixed, about 1.5 mm. long, white or light-yellow to dark-brown or green, subcaudate; style white, long-exserted, about 2 cm. long, often somewhat shorter than the stamens; stigmas lilac, about 2 mm. long, bifid, the lobes slender; ovary obconic, about 1.5 mm. long, externally glabrous; fruiting-calyx accrescent, pink or light-pink to pink-purplish, reddish, red-violet, or blood-red, 5-lobed, sometimes greenish outside and reddish inside, the lobes eventually spreading or reflexed; fruit drupaceous, globose, at first green or dark-green, 6 mm. long and 5 mm. wide, turning purple-green or blue, eventually dark-purple or black, splitting into 4 nutlets.

This form is based on *Schlechter 14455* from 1000 m. altitude in the Torricelli Mountains in the Territory on New Guinea, Papua New Guinea, collected in April, 1902. It is a member of the Subsection *Paniculata* of Section *Microcalyx*. It differs from the typical form of *C. buruanum* chiefly in its leaf-blades being conspicuously soft-pubescent on both surfaces, especially above, and the corolla-tube only scarcely exceeding the calyx in length. Lauterbach (1905) notes that "Die Art ist mit *C. ingratum* Laut. et K. Sch. verwandt, jedoch durch die starke Behaarung, Kelch- und Blütenform abweichend."

Frodin avers that the "lvs. [are] grayish-green above, perianth persistent, fruit dark-gray", but his collection must have been unusual to possess these characters.

Pulle's *C. versteegi* is based on *Versteeg 1396* from West Irian.

Clerodendrum buruanum f. *lindawianum* has been encountered by collectors in and at the borders of rainforests, in the sandy soil of primary and secondary forests on ridge crests, along open trailsides, in jungles among bamboo, grasses, and ferns, in mountain forests and rainforest regrowth, in old garden areas, lowland *Dipterocarpus* forests, and rather shady and damp *Nothofagus*-dominated forests, on steep banks and limestone hillsides, in logging areas of woodland, and in riverbeds and scree, from sealevel to 2070 m. altitude, in flower from December to February and April to October, and in fruit from March to May, July to September, December, and January -- apparently it blooms and fruits throughout the year.

The corollas are mostly described as "white" (as on Aet 339, Brass 2919 & 3403, Clemens & Clemens 596, Darbyshire 224, Floyd 6654, Gjellerup 95, Kajewski 2341 & 2502, Kanehira & Hatusima 11437, K ie & Olsen 1388, Lam 503, Ledermann 8219 & 10457a, Mamit s.n., Nyman 831, Peekel 160, Sawyer 218, Stevens & Lelean LAE.58312, and Womersley 3851), but as "snow-white" on Kajewski 1978, "white with pink throat" on Lam 401 & 1401, "pink" on Schlechter 14455, "lilac" on Bloembergen 4022, and "tube pink or rose" on Schlechter 14455.

The plant was found growing "on a small coral island 2 km. off shore" by K ie & Olsen. Womersley describes it as "usually in secondary bush" in New Guinea; Brass found it "common in rainforest regrowth" in Papua; and Kajewski reports it common in rainforests on Bougainville.

It is worth noting that the calyx is noticeably shorter than usual on Brass 2919 and Kajewski 1978, 2341, & 2502.

Bakhuizen (1929) comments that "This variety is only known from New Guinea up to the present and also from the Dutch division of it: it differs from the type, which chiefly occurs in the Moluccas, in having the leaves softly hairy at the upper side and the corolla tube very short, scarcely exceeding the calyx. The leaves, however, are very variable in size, now rather large, thin and with a long petiole, now smaller, chartaceous and with a rather short petiole. The species is also closely related to *Clerodendrum infortunatum* L."

Vernacular names reported for *C. buruanum* f. *lindawianum* are "a melmalu palpalana", "ambus-gor-le-le", "anbus-gor-le-le", "a melmalu palpalana", "e-ya-papor", "fuho", "jamu-jamu", "kaiye", "koru-kopu", "namovar", "nengkello", and "pepargil".

Wernham (1916) regarded the form as "endemic in New Guinea", citing Kloss s.n. from West Irian; Hallier (1918) cites Versteeg 1396 and Zippelius 167b as *C. versteegi* and notes: "Deutlich anisophyll! Von einer sehr nahe verwandten Art [referring to *C. curranii* Elmer?] liegt nur ein mangelhaftes, zu einer Beschreibung nicht ausreichendes Exemplar vor (Molukken? Zippelius 167b, mit blutrothen Fruchtkelchen)."

Lam (1919) cites from the Territory of New Guinea: Ledermann 6615, 8219, 10457a, & 11889, Nyman 831, and Schlechter 14455; from West Irian: R mer 61 & 222; and from New Ireland: Peekel 160. In his 1924 work he cites the same collections.

Bakhuizen (1924, 1929) cites Brass 924 & 1412 as well as Lam 401, 503, & 1401 and Versteeg 1396, giving the overall distribution, as regarded by him, as the Moluccas, Philippines, and New Guinea. Fedde & Schuster (1932) cite Versteeg 503, 1396, & 1401 from West Irian, but this is an error in transcription -- the first and third numbers apply to Lam collections.

Kajewski tells us that the leaves of this plant are placed in water with bamboo, allowed to rot, and then rubbed on children's bodies to treat skin diseases; also that bark is stripped off and the "sappy part" is applied by natives to places on the body that are sore; the leaves boiled in water are applied to sore legs.

Stevens & Lelean refer to the fruits as "berries", but they are drupes.

The so-called *C. lindawianum* var. *glabrior* Gibbs is now known as *C. albiflos* var. *glabrior* (Gibbs) H. J. Lam.

Material of *Clerodendrum buruanum* f. *lindavianum* has been misidentified and distributed in some herbaria as *C. adenophysum* Wall., *C. confusum* H. Hallier, *C. infortunatum* L., *C. rubuanum* Miq., and *C. villosum* Blume.

Citations: GREATER SUNDA ISLANDS: Celebes: *Boemboengen* 4022 (Bz--20957); *Kjellberg* 1544 (Bz--18941, S). Sarawak: *Ismawi & Kudi* s.n. [Herb. Sarawak For. Dept. S.32078] (Ld); *Mamit* s.n. [Herb. Sarawak For. Dept. S.33408] (Kh, Tu); *Native collector* 526 (Bz--19693), 1828 (Bz--19694). NEW GUINEA: Papua: *Brass* 924 (Bz--18945), 1412 (Bz--18943), 3970 (Bz--20186); *Chalmers* s.n. [1885] (Mb); *Forbes* s.n. [1887] (Mb); *MacGregor* s.n. [Mt. Musgrove, 25/ 6/ 89] (Mb), s.n. [Port Moresby 1889] (Mb). Territory of New Guinea: *Clemens & Clemens* 596 (B), 5198 (B, N); *Darbyshire* 224 (Ba); *Darbyshire & Hoogland* 8107 (Ba); *Schlechter* 14455 (Br--isotype, Bz--18942--isotype, Ld--photo of isotype, N--isotype, N--photo of isotype); *Womersley* 3851 (Ng--6483). West Irian: *Aet* 6 (Bz--72582), 119a (Bz--72581), 339 (Bz--72951, Ng--16931); *Feuilletau de Bruyn* 381 (Bz--18779); *Gjellerup* 95 (Bz--18952); *Kanehira & Hatusima* 11437 (Bz--18933); *Lam* 401 (Bz--18947), 503 (Bz--18944, Bz--18946), 1061 (Bz--18938, Bz--18939, Bz--18940, Ut--63841), 1401 (Bz--18948, Bz--18949); *Meyer Drees* 520 [Boomproefst. bb.25730] (Bz--20956); *Römer* 222 (Bz--18953, Bz--25548, N); *Sawyer* 218 (Ca--1288320); *Versteeg* 1396 (Bz--18950, Bz--19851, Bz--25950, Ld--photo, N--photo, Ut--13808). BISMARCK ARCHIPELAGO: *Dyaul: Kôie* 1847 (Cp). *Mussau: Kôie & Olsen* 1200 (Cp), 1340 (Ac, Cp), 1388 (Cp, Ld), 1404 (Cp), 1623 (Cp), 1697 (Ac, Cp). New Britain: *Floyd* 6654 (Ng--16842, Ng, W--2603233, W--2603249); *Frodin* NGF.26684 (N); *Stevens & Lelean* LAE.58312 (Mu, W--2956533). SOLOMON ISLANDS: *Bougainville: Kajewski* 1925 (Bi, Bz--19088, Bz--19089, Bz--19099), 1978 (Bi, Bz--19095, Bz--19097). *Guadalcanal: Kajewski* 2502 (Bi, Bz--19086, Bz--19091, N). *Malaita: Kajewski* 2341 (Bi, Bz--19090, Bz--19092). *San Cristoval: Brass* 2919 (Bi, Bz--19093, Bz--19096). *Ysabel: Brass* 3403 (Bi, Bz--19094, Bz--19098).

CLERODENDRUM BÜTTNERI Gürke, Engl. Bot. Jahrb. 18: 174--175 [as "*Clerodendron*"]. 1893; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. *Clerod.*] 14 & 92. 1936.

Synonymy: *Clerodendron buettneri* Gürke, Engl. Bot. Jahrb. 18: 174. 1893. *Clerodendron buettneri* Gürke apud J. G. Baker in *Thiselt.-Dyer*, Fl. Trop. Afr. 5: 293 & 302. 1900. *Clerodendron buettneri* Gürke apud B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. *Clerod.*] 61. 1936.

Bibliography: Gürke, Engl. Bot. Jahrb. 18: 174--175. 1893; J. G. Baker in *Thiselt.-Dyer*, Fl. Trop. Afr. 5: 293 & 302. 1900; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 101. 1901; DeWild., Bull. Jard. Bot. Brux. 7: 165. 1920; DeWild., Pl. Bequaert. 2: 258. 1922; Good & Exell, Journ. Bot. Brit. 68: Suppl. 2: 141. 1930; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. *Clerod.*] 10, 14, 35, 61, & 92. 1936; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 101. 1941; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 47, 48, & 89. 1942; Mold., Alph. List Cit. 2: 504. 1948; H. N. & A. L. Mold., Pl. Life 2: 52. 1948; Mold., Alph. List Cit. 3: 963 (1949) and 4: 1153 & 1159. 1949; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 113, 114, & 180. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 101. 1959; Mold., Résumé 139--141 & 448. 1959;

H. Huber in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 2: 439 & 442. 1963; Mold., Résumé Suppl. 15: 17 & 18. 1967; Mold., Fifth Summ. 1: 221, 223, 225, 226, 228, & 461 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 212, 213, 215, 216, 218, & 534. 1980.

A climbing shrub or small liana; branches, branchlets, and twigs densely brown-hispid with long, wine-red, articulated hairs; leaves decussate-opposite, short-petiolate; petioles 1--2 cm. long, densely long-villous; leaf-blades herbaceous, oblong or elliptic-oblong, 7--10 cm. long, 2.5--4 cm. wide, apically acuminate, marginally entire, basally more or less unequally cordate or subcordate, dull medium-green above, paler beneath, brown-hispid or -villous to subvillous-pubescent principally along the venation beneath; secondaries 4 or 5, arcuate-ascending; inflorescence terminal; peduncles about 1 cm. long, very densely long-villous; cymes corymbiform, few-flowered; pedicels elongate; bracts minute, filiform to subulate-filiform; calyx very pale-green, the tube about 5 mm. long, 5-parted nearly to the base, the lobes ovate-lanceolate, 1--3 mm. long, apically acute, 3-veined, pilose; corolla tubular, white or yellowish-white with a red center, sometimes pale-pink, about 1.6 cm. long, basally pale-green, the tube pilose, slightly surpassing the calyx, the throat rose-tinted; stamens very long-exserted; anthers dark-brown; style very long-exserted, pale-green.

This species is based on *Blittner* 426 from along the road to Sibange, Munda, in the Gabonese Republic, collected in September, 1884, and deposited in the Berlin herbarium, now probably destroyed.

Collectors have encountered the plant in shady forests, including virgin and secondary forests, and on abandoned native plantations, in flower in January, May, and September, at 650 m. altitude. Gossweiler refers to it as "not frequent".

Gürke (1893), in commenting on his *C. dinklagei*, notes that this taxon "Steht den *C. Blittneri* sehr nahe, ist aber durch schwächere und kürzere Behaarung unterschieden; auch sind hier die Haare rückwärts gerichtet, bei *C. Blittneri* abstehend. Die Blätter sind am Grunde abgerundet und nicht herzförmig wie bei *C. Blittneri*, auch etwas länger zugespitzt. Die Kelchzipfel sind länger, schmaler und mehr zugespitzt als bei jener Art."

DeWildeman (1922) cites for *C. blittneri* only *Bequaert* 6755; Good & Exell (1930) cite *Gossweiler* 6904, 7681, & 7898 from Portuguese Congo [Longo, Angola], giving the overall distribution of the species as Nigeria, Cameroons, Gabon, and Congo.

Thomas (1936) cites *Blittner* 526 and *Gossweiler* 7998 from Gabon, *Tessmann* B.13 & 22 from the Republic of Equatorial Guinea, and *Leder-mann* 712, *Mildbraed* 5769, *Staudt* 347, *Tessmann* 868, *Zenker* 687, 1256, & 2702, and *Zenker & Staudt* 418 from the Cameroons.

Huber (1963) cites only *Latilo* FHI.31813 from Southern Nigeria, noting "Also in Cameroons, Rio Muni and Gabon".

DeWildeman (1922) cites Baker's (1900) work to p. "362" instead of to page 302. Gürke's work (1893) is sometimes erroneously cited as "1894", the titlepage date.

Citations: CAMEROONS: *Breteler* 1739 (Mu); *Gocker* 45 (W--1051329); *Staudt* 347 (L, S); *Zenker* 687 (N), 1256 (L, Mu--3708), 2702 (Br, Mu--4004, N), s.n. (Br); *Zenker & Staudt* 418 (Ca--617121, S). ZAIRE: Be-

quaert 6755 (Br); *Cabra 7* (Br); *Germain 5114* (E--2168592); *Lebrun 985* (Br).

CLERODENDRUM CABRAE DeWild., Ann. Mus. Congo, ser. 5, 3: 131 [as "*Clerodendron*"]. 1909; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. *Clerod.*] 81. 1936.

Synonymy: *Clerodendron cabrae* DeWild., Ann. Mus. Congo, ser. 5, 3: 131. 1909.

Bibliography: DeWild., Ann. Mus. Congo, ser. 5, 3: 131. 1909; Prain, Ind. Kew. Suppl. 4, imp. 1, 50. 1913; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. *Clerod.*] 16, 25, 44, 81, & 92. 1936; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 48 & 89. 1942; Mold., Alph. List Inv. Names Suppl. 1: 6. 1947; H. N. & A. L. Mold., Pl. Life 2: 52. 1948; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 115 & 180. 1949; Prain, Ind. Kew. Suppl. 4, imp. 2, 50. 1958; Mold., Résumé 141, 148, 261, & 448. 1959; Mold., Fifth Summ. 1: 228, 245, & 441 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 218, 235, & 534. 1980.

A large tree, branched shrub, or much-branched sun-loving liana, short-pubescent on the young parts; branches short-pubescent; bark gray; leaves decussate-opposite, subsessile or short-petiolate; petioles to about 12 mm. long; leaf-blades ovate or ovate-rotund, about 7 cm. long and 4.5 cm. wide, apically subtund or cuneately acute, marginally entire or sparsely dentate and ciliate, basally cuneate or rounded to subcordate, sparsely pilose; cymes axillary, opposite, paniculate, dichotomous, about 5-flowered, the rachis 5--6 cm. long; flowers pedicellate, zygomorphic, odorless; pedicels basally bracteolate, reflexed; calyx campanulate, 5--6 mm. long, strongly zygomorphic, red, sparsely tomentose, the lobes overlapping in opposite pairs, broadly ovate, apically rounded, erect, appressed to the corolla-tube; corolla bicolored, plainly irregular, the tube about 1 cm. long, basally inflated, the lobes about 1.5 cm. long and 8 mm. wide, glabrous, 4 green or light-green and the 5th (lowermost) blue or mauve, or the upper ones gentian-violet (*Seguy 647*) and the ventral surface of the lower ones mauve with the dorsal surface bronze-green like the tube; stamens only slightly exerted from the corolla-mouth; filaments green; anthers yellow; style about 4 cm. long, far surpassing the stamens; ovary green, to 2.5 cm. long; ripe fruit brilliant red-brown or red.

The species is based on *Cabra-Michel 44* from along the river between Tumba Mani and Kwango, Zaire, collected on September 1, 1902, and deposited in the Brussels herbarium. It is a member of the Section *Chaunocymosa* of Subgenus *Cyclonema*. A key to distinguish the taxa in this Section is given by Thomas (1936), on pages 44 to 48.

Collectors have found *Clerodendrum cabrae* growing in forests and along riversides, at 470--1800 m. altitude, in flower in February, July, and December.

Vernacular names reported for this plant are "dillko", "ifonge", "inaolo a mbambake", "inaolo a wangange", "mambake", "mbambake", "mbambake boliki" [=the liana mbambake], "mbambake e boliki", and "mbondó éâ ngonda".

Thomas (1936) cites only the type collection. DeWildeman (1909) comments that "Cette espèce semble devoir se rapprocher surtout du *C. sansibarense* Gürke.....Elle se différencie par ses feuilles opposées

et plutôt courtement pétiolées, parfois même sessiles. La disposition opposée des feuilles différencie le *C. Cabrae* du *C. ternatum* Schinz qui a avec *C. sansibarense* certaines analogies."

Germain 309 is a mixture of *C. cabrae* and *C. germaini* Mold. Material of *C. cabrae* has been misidentified and distributed in some herbaria as *C. sansibarense* Gürke and *C. scheffleri* Gürke.

Citations: ZAIRE: *Achten 561b* (Br, Br), *566b* (Br, Br, N); *Bredo 2718* (Br); *Cabra-Michel 44* (Br--type, Ld--photo of type, N--photo of type); *Claessens 513* (Br); *Descamps s.n.* [Katanga] (Br); *Dewulf 826* (Br, N); *Dubois 135* (Br, Br); *Germain 294* (Br, Br), *309a* (Br, Br, Br, N), *417* (Br); *Gillardin 387* (Br, Br, Br); *Goossens 2437* (Br); *Hulstaert 311* (Br), *1356* (Br), *1439* (Br); *Lebrun 1446* (Br, Br), *2578* (Br, Br), *6259* (Br, Br); *J. Leonard 619* (Br, N); *J. Louis 869* (Br, N, S), *1389* (Br), *7155* (Br, N), *7274* (Br), *8685* (Br, Ca--962231, Vi), *8943* (Br, W--2091037), *9144* (B, Br), *10109* (Br), *10926* (Br), *12513* (Br), *14728* (Br), *15905* (Br); *Quarré 7062* (Br, Br); *Renier 49* (Br, N); *Vanderyst 10746* (Br), *10947* (Br, Br), *11124* (Br), *12290* (Br, N), *12347* (Br, N), *16724* (Br), *24388* (Br, Br, N), *24389* (Br), *24390* (Br, Br), *24391* (Br), *31634* (Br, Br). ZAMBIA: *Burt 6380* (Br).

CLERODENDRUM CAERULEUM N. E. Br., Kew Bull. Misc. Inf. 1895: 115--116 [as "Clerodendron"]. 1895; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 80. 1936.

Synonymy: *Clerodendron caeruleum* N. E. Br., Kew Bull. Misc. Inf. 1895: 115. 1895.

Bibliography: N. E. Br., Kew Bull. Misc. Inf. 1895: 115--116. 1895; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 101. 1901; H. H. W. Pearson in Theselt.-Dyer, Fl. Cap. 5 (1): 218 & 222--223. 1901; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 44, 80, & 92. 1936; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 101. 1941; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 52 & 89 (1942) and ed. 2, 121 & 180. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 101. 1959; Mold., Résumé 153 & 448. 1959; Mold., Fifth Summ. 1: 255 (1971) and 2: 863. 1971; Bayer, Flow. Paint. Saunders 264 & [265], pl. 75 [sin.]. 1979; Mold., Phytol. Mem. 2: 244 & 534. 1980.

Illustrations: Bayer, Flow. Paint. Saunders 264 & [265], pl. 75 [sin.] (in color). 1979.

A perennial woody herb or low much-branched shrub, to 1 m. tall; stems dark-reddish; young branches dark-brown, tetragonal, puberulent in 2 opposite lines, later glabrous; bark grayish, glabrous, more or less tuberculate, wrinkled; leaves decussate-opposite, petiolate, not malodorous; petioles 2--12 mm. long, puberulent; leaf-blades membranous, yellow-green, ovate or ovate-lanceolate to almost oblong, sometimes distinctly hastate, 0.8--6 cm. long, 0.4--2.5 cm. wide, apically acute, marginally coarsely and acutely 3- or 4-dentate or -serrate, rarely entire, basally cuneate, sparsely puberulent above and on the venation beneath, marginally ciliate; secondaries 3--5 per side, prominent beneath; inflorescence axillary, cymose; cymes 1--3-flowered, solitary, pedunculate; peduncles slender, 2--3.5 cm. long, 2-bracteate near the summit, puberulent along the posterior line, otherwise glabrous; flowers showy, pedicellate; pedicels 2--4 mm. long; bracts subulate, 2--3 mm. long, completely glabrous or marginally ciliate;

calyx campanulate, 2--5 mm. long, strongly 5-veined, externally glabrous or minutely puberulent, the rim 5-toothed, the teeth distant, narrowly deltoid, apically acutely long-acuminate, equaling the tube, marginally obscurely ciliolate; corolla blue or purple, irregular, the tube curvate, 7 mm. long or about twice as long as the calyx, glabrous except for the villous throat, the limb 1.4--1.6 cm. wide, the 4 upper lobes elliptic, subequal, apically obtuse, the lower lobe cuneate-obovate, apically subtruncate; stamens 1.6 cm. long, incurved, long-exserted; style long-exserted; fruit drupaceous, 4-lobed, 2-seeded, externally glabrous.

This species is based on *Gerrard & Mcken 1252* from the Mooi River valley, at 2000--3000 feet altitude, Natal, South Africa, deposited in the Kew herbarium. Thomas (1936) has designated this collection (which he cites as *Gerrard 1252*) as the type from among the three collections originally cited by Brown -- *Gerrard & Mcken 1252* and *Sutherland s.n.* from Natal and *Mrs. K. Saunders s.n.* from Swaziland.

Brown (1895) notes that the species is "Allied to *C. myricoides*, R. Br., but easily recognized by its much narrower and very acute calyx-teeth".

The corollas are described as "blue" on *Repton 1184* and *Wells 2211*, as well as by Gerrard, and as "purple" on *Galpin 14776*. They are depicted by Saunders (1979) as deep purple-blue. The *Wells 2211* collection exhibits decidedly hastate leaf-blades.

Collectors have encountered this plant on grassy banks, among bushes on steep hillsides, in thorn veld, and "flat on the soil surface among rocks", often cropped short by goats, at altitudes of 660--1000 m., in flower in January, February, and November. Pentz refers to it as "a common shrub in thorn veld". Thomas (1936) cites only the type collection and *Sutherland s.n.*

Material of *Clerodendrum caeruleum* has been misidentified and distributed in some herbaria as *C. lanceolatum* N. E. Br., *C. myricoides* (Hochst.) R. Br., and *C. myricoides* var. *camporum* Gürke.

Citations: SOUTH AFRICA: Natal: *Galpin 14776* (Af); *Pentz 541* (Af, Ld); *Repton 1184* (Af); *Wells 2211* (Mu). Transvaal: *Van der Schijff 2319* (Af).

CLERODENDRUM CAESIUM Gürke, Engl. Bot. Jahrb. 28: 300--301 & 466 [as "*Clerodendron*"]. 1900; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. *Clerod.*] 81. 1936.

Synonymy: *Clerodendron caesium* Gürke, Engl. Bot. Jahrb. 28: 300 & 466. 1900. *Clerodendrum caesium* Guerke ex Richards & Morony, Check List Fl. Mbala 236 sphalm. 1969.

Bibliography: J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 520. 1900; Gürke, Engl. Bot. Jahrb. 28: 300--301 & 466. 1900; K. Schum., Justs Bot. Jahresber. 28 (1): 496. 1900; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 43. 1904; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. *Clerod.*] 44, 81, & 92. 1936; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 49 & 89 (1942) and ed. 2, 116 & 180. 1949; Mold., Résumé 141, 143, 148, & 448. 1959; F. White, For. Fl. North. Rhodes. 365. 1962; Mold., Résumé Suppl. 9: 3. 1964; Richards & Morony, Check List Fl. Mbala 236. 1969; Mold., Fifth Summ. 1: 228, 235, 245, & 441 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 218, 224, 235, 383, & 534. 1980.

A bush or shrub, to 6.5 m. tall; young branches tetragonal, clothed with brown, weak, multicellular hairs especially at the nodes; leaves decussate-opposite, very short-petiolate; petioles about 5 mm. long, finely pilose; leaf-blades membranous or thin-membranous, elliptic or broadly elliptic, 5--12.5 cm. long, 3--5 cm. wide, twice as long as wide at the central point, apically acute or slightly acuminate, marginally weakly serrate (the teeth with short but plainly acuminate tips), basally narrowed into the petiole, glabrous on both surfaces except for the sparingly pilose larger venation with weak brownish hairs; inflorescence terminal, paniculate, very lax, with the cyme-branches thin and slender, pilose on their nodes; bracts of the main axis broadly ovate, apically acuminate, marginally entire, basally narrowed into the very short stalk, thinly herbaceous, glabrous on both surfaces or here and there sparingly pilose on the venation, the lowermost to 3 cm. long and 1.5 cm. wide, becoming smaller upwards, the uppermost only 5 mm. long and 3 mm. wide, those of the lateral axes filiform, 4--5 mm. long, apically acute; pedicels 5 mm. long; calyx broadly campanulate, 5 mm. long, basally narrowed into the pedicel, externally very sparingly pilose, 5-lobed to about the middle, the lobes deltoid, 2.5 mm. long, equaling the tube in length, apically obtusely rounded; corolla blue or pale-blue, zygomorphic, the lower lip dark-blue, the tube at most twice the length of the calyx.

This species is based on *Götze 633* from woods at Muhanga, Uhehe, in the Uchungwe Mountains, at 1800 m. altitude, in "Nördl. Nyassaland [Deutsch Ost-Afrika]" -- actually in Tanganyika, Tanzania, according to Baker (1900), Schumann (1900), and Thomas (1936) -- on February 10, 1899, and deposited in the Berlin herbarium, now lamentably destroyed.

Gürke (1900) comments that "Die Art gehört zur Section *Cyclonema* in die Verwandtschaft von *Cl. myricoides* R. Br. und von *Cl. silvicola* Gürke. Mit letzterer stimmt sie in der Behaarung überein, unterscheidet sich aber durch die blauen Blüten und durch die kürzer gestielten Blätter". He records the vernacular name, "bumbaluma", citing only the type collection. Baker (1900) also cites only the same collection. Thomas (1936) cites *Götze 633*, *Schlieben 3567*, *Troll 5000*, and *Von Brehmer 729* from Tanganyika. Richards & Moroney (1969) cite *Bull 3316* and *M. R. 4105 & 21523* from Mbala, where, they report, the plant is "Abundant along damp water courses in black cotton soil" of *dambo*.

Collectors have found *Clerodendrum caesium* growing along roadsides at the edges of relict forest patches, at 1200--2200 m. altitude, in flower in February. The *Verdick 161* collection, cited below, greatly resembles *C. erectum* DeWild., but exhibits stamens that are far too long for it to be regarded as representing that taxon.

Citations: ZAIRE: *Dewitte 548* (Br), *578* (Br); Herb. RRPP. *Salesiens S. 939* (Br); *Hock s.n.* [1911] (Br, Ld--photo, N--photo); *Quarré 2540* (Br, Br, Br, Br, N), *3413* (Br); *Verdick 161* (Br). ZAMBIA: *Burt 6124* (Br); *E. Milne-Redhead 1047* (Br). TANZANIA: Tanganyika: *Schlieben 3567* (B).

CLERODENDRUM CALAMITOSUM L., Mant. Pl. 1: 90. 1767.

Synonymy: *Volkameria alternifolia* N. L. Burm., Fl. Indica 137, pl. 44. 1767. *Clerodendrum calamitosum* Retz., Nom. Bot. 155. 1772.

Volkameria alternifolia Burm. ex Nemnich, Allgem. Polyglott. Lex. 1: 1065. 1791. *Clerodendron foliis ovalibus, subdentatis, nudis* L. ex Poir. in Lam., Encycl. Méth. Bot. 5: 164 in syn. 1804. *Volkameria (alternifolia), ramis inermibus; foliis alternis, ovatis, dentatis; floribus terminalibus* Burm. apud Poir. in Lam., Encycl. Méth. Bot. 5: 164 in syn. 1804. *Clerodendron calamitosum* L. ex Steud., Nom. Bot. Phan., ed. 1, 207 sphalm. 1821. *Clerodendron calamitosum* L. apud Spreng. in L., Syst. Veg., ed. 16, 2: 759. 1825. *Clerodendron calamitosum* α *glabriusculum* Hassk., Retzia 58. 1855. *Clerodendron calamitosum* μ *molle* Hassk., Retzia 58. 1855. *Volkameria alternifolia* Burm. f. ex Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 1219 in syn. 1895. *Clerodendron calamitosum* L. ex E. D. Merr., Fl. Manila, imp. 1, 403. 1912. *Clerodendron phlomoides* f. *Luxurians* Horsf. ex Mold., Prelim. Alph. List Inv. Names 21 in syn. 1940. *Clerodendron calamitosum* var. *glabriusculum* Horsf. ex Mold., Fifth Summ. 1: 441 in syn. 1971. *Verbena clerodendron* Froes ex Mold., Fifth Summ. 2: 663 in syn. 1971. *Clerodendron calamitosum* Farnsworth, Pharmacog. Titles 9: 115 sphalm. 1974. *Clerodendron calamitosum* ϵ *glabriusculum* Horsf. ex Mold., Phytol. Mem. 2: 384 in syn. 1980. *Clerodendron jasminoides* Din ex Mold., Phytol. Mem. 2: 387 in syn. 1980.

Bibliography: L., Mant. Pl., imp. 1, 1: 90. 1767; N. L. Burm., Fl. Indica 137, pl. 44. 1768; Retz., Nom. Bot. 155. 1772; Reichard in L., Syst. Pl. 3: 198. 1780; J. F. Gmel. in L., Syst. Nat., ed. 13, imp. 1, 2: 962. 1789; Nemnich, Allgem. Polyglott. Lex. 1: 1065. 1791; J. F. Gmel. in L., Syst. Nat., ed. 13, imp. 2, 2: 962. 1796; P. Mill., Gard. Dict., ed. 9, 1: *Clerodendron* 4. 1797; Raeusch., Nom. Bot., ed. 3, 182. 1797; Willd. in L., Sp. Pl., ed. 4 [5], 3 (2): 386. 1802; Poir. in Lam., Encycl. Méth. Bot. 5: 164--165. 1804; Pers., Sp. Pl. 3: 365. 1819; Steud., Nom. Bot. Phan., ed. 1, 207. 1821; Blume, Cat. Gewass., imp. 1, 82. 1823; Blume, Bijdr. Fl. Ned. Ind. 9: 810. 1825; Spreng. in L., Syst. Veg., ed. 16, 2: 759. 1825; Blume, Bijdr. Fl. Ned. Ind. 14: 810. 1826; W. Hook., Curtis Bot. Mag. 56 [ser. 2, 3]: pl. 2925. 1829; Loud., Hort. Brit., ed. 1, 247 (1830) and ed. 2, 247. 1832; Bojer, Hort. Maurit. 256. 1837; G. Don in Loud., Hort. Brit., ed. 3, 247. 1839; Steud., Nom. Bot. Phan., ed. 2, 382. 1840; D. Dietr., Syn. Pl. 3: 617. 1843; Hassk., Cat. Pl. Hort. Bogor. Cult. Alt. 136. 1844; Voigt, Hort. Suburb. Calc. 473. 1845; Walp., Repert. Bot. Syst. 4: 100 & 109. 1845; Schau. in A. DC., Prodr. 11: 657 & 663. 1847; Wittstein, Etymolog.-bot. Handwörterb., imp. 1, 206. 1852; Hassk., Retzia 58--59. 1855; Buek, Gen. Spec. Syn. Candoll. 3: 105 & 502. 1858; Miq., Fl. Ned. Ind. 2: 870--871. 1858; C. Muell. in Walp., Ann. Bot. Syst. 5: 711. 1860; Miq., Fl. Ind. Bat. Suppl. 1: 242. 1861; Balf. f., Edinb. New Philos. Journ., ser. 2, 15: 232. 1862; Bocq., Adansonia, ser. 1, 2: 159. 1862; W. Hook., Curtis Bot. Mag. 88 [ser. 3, 17]: pl. 5294. 1862; Bocq., Adansonia, ser. 1 [Baill., Rec. Observ. Bot.] 3: 214. 1863; Lem., Illust. Hort. 10: pl. 358. 1863; Houillet, Rev. Hort. 39 [ser. 2, 2]: 420. 1867; Naves & Fern.-Villar in Blanco, Fl. Filip., ed. 3. 4: Nov. App. 160. 1880; C. B. Clarke in Hook. f., Fl. Brit. India 4: 591. 1885; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 560. 1893; Stapf, Trans. Linn. Soc. Lond., ser. 2, 4: 216. 1894; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 1219. 1895. [to be continued]